Työterveyslaitos | Arbetshälsoinstitutet
Finnish Institute of Occupational Health

Value of Safety (VALOSA)

FINAL REPORT

Henriikka Ratilainen (Ed.)

Työterveyslaitos | Arbetshälsoinstitutet
Finnish Institute of Occupational Health

Value of Safety (VALOSA)

FINAL REPORT

Authors:

Part I: Henriikka Ratilainen[1] (Editor), Simo Salminen[1], Gerard Zwetsloot[2], Pia Perttula[1], Annick Starren[2], Wouter Steijn[2], Krista Pahkin[1], Linda Drupsteen[2], Vuokko Puro[1], Tuula Räsänen[1], Markku Aaltonen[1], Frank Berkers[2], Virpi Kalakoski[1]

Part II: Henriikka Ratilainen[1] (Editor), Virpi Kalakoski[1], Antti Ukkonen[1], Pia Perttula[1], Vuokko Puro[1], Jouko Remes[1]

1) Finnish Institute of Occupational Health (Finland)

2) TNO (The Netherlands)

Finnish Institute of Occupational Health

Helsinki

Finnish Institute of Occupational Health

Solutions for Safety

PB 40

00251 Helsinki

www.ttl.fi

Editorial staff: Henriikka Ratilainen

This publication has been accomplished with the support by Finnish Institute of Occupational Health, TNO, Finnish Work Environment Fund, and FonCSI. This project has been part of SAF€RA program.

Part I published on 2016-09-23 in SAF€RA technical report number 2016-01

Part II published on 2017-01-16 in SAF€RA technical report number 2017-01

ISBN 978-952-261-796-5 (nid.)

ISBN 978-952-261-795-8 (PDF)

Juvenes Print, Helsinki, 2018.

FOREWORD

Many organizations today proclaim that safety is a company value. Though this kind of statement generates little disagreement, its practical implications for decision-making, allocation of resources, the organization of work and the concrete production of safety at the sharp end of operations are not very clear. How do different categories of managers and workers understand the meaning of safety as a value? If the principle of "safety as a core value" sometimes conflicts with "generating value for shareholders", how is this value conflict managed? What are the implications for safety management, both at a strategic level and for the wellbeing of people in the workplace?

The VALOSA research project aims to explore these important issues and provide a better understanding of the practical implications of safety as a value brings together researchers from the Finnish Institute of Occupational Health (FIOH) and from TNO (the Netherlands). It was funded by the Finnish Work Environment Fund (FWEF) and the Foundation for an Industrial Safety Culture (FonCSI) in the context of the SAF€RA ERA-NET's 2013 joint call for proposals on "The value of safety and safety values".

Eric Marsden (FonCSI) and Kenneth Johansson (FWEF)

ABSTRACT

Many companies describe safety as their top priority, but does that mean that safety is a value for them? In the last few years, it has been increasingly acknowledged in safety research that value-based management commitment and the economic perspective are of crucial importance to safety performance. However, little research has been performed on the value of safety, confusion surrounds the definition and impact of safety values, and no evidence-based methodologies exist for supporting, promoting and sharing safety values.

The research presented in this report provides answers to these questions: Do individuals perceive safety as a value (a deeply held principle or guiding philosophy), or only as a priority (an important element among others to be integrated into their arbitration between competing goals)? Do they believe that their employer treats safety as an (intrinsic) value, or as an (instrumental) goal, worth pursuing because it reduces losses and can impact on productivity?

Value is a criterion people use, often implicitly, to select and justify actions and to evaluate people and events. Values are operating philosophies or principles that guide an organization's internal conduct as well as its relationship with the external world. They have a major influence on the behaviour of individuals and teams and serve as broad guidelines in all situations. Values are more stable and can be expected to have a more sustainable impact on safety than safety as "just a priority". In this project, safety values and other supporting values for safety are addressed in the context of business strategy, corporate identity and corporate social responsibility.

Safety values are important because they underlie any safety culture. Particularly in an era of deregulation, globalization, economic downturn and the 'changing world of work', values and culture are more stable than management systems or priorities. Such values are also a component of firms' Corporate Social Responsibility programmes. CEOs and production managers play a key role in safety management and safety promotion in their organization. Their commitment ultimately depends on their values and those of the organization, and of its key stakeholders. On this level in particular, there is often an imbalance between safety values and business values, leading to dilemmas and unsafe situations. By exploring safety values and dilemmas, this report provides insights into more successful mechanisms that have the potential to strengthen and promote safety values. The ultimate goal is to embed safety values in the values and strategies of the company.

In this study, the first objective was to develop a common understanding of how safety as a value is defined by a variety of key stakeholders — CEOs/managers, employee representatives, safety experts and researchers. The second objective was to study what dilemmas or bottlenecks must be taken into account when practicing safety values, how organizations can effectively deal with them, and effective ways to promote safety through communicating while sharing safety as an organizational value.

We first conducted a descriptive literature review, in order to provide information on the general background and context safety values, to define the safety value, and to explore value perspectives. Based on the literature, we developed an interview method and carried out seventeen interviews with senior managers in 15 organizations from five European countries (Finland, Germany, the United Kingdom, Spain and Turkey), to obtain practice-based information on safety values and their impact on an organization's functions. Next, we conducted a Delphi study, to develop a common understanding of how safety as a value is defined by a variety of key stakeholders, e.g. what it means when safety is an organizational value, what value safety has for organizations, what are the most relevant factors that influence the value of safety, what factors are expressions of having safety as a value and can be used to recognize or perhaps measure safety as a value, as well as the ethical justification for "having safety as an organizational value". Finally, we used group interviews and surveys in three Finnish companies to study how safety is valued by different organizational groups, what kinds of value conflicts emerge in everyday work, decision-making and value communication, how organizations promote and share safety as a value in practice, and what factors within companies and organizations can strengthen safety as a value.

The literature review revealed that no clear and broadly accepted definition of the value of safety or safety values yet exists. The value of safety is often implicitly associated with the importance associated with safety in an organization. However, Safety as a value" goes beyond "safety as a priority". Organizational values have a more strategic impact than mere priorities. The senior manager interviews showed that, although the corporate values were defined, safety was not always mentioned as a core value. Safety was viewed as being so embedded in the core business that it was not regarded as necessary to include safety explicitly in the company's core values. The core values also correspond to the interviewed CEO's/manager's own personal values. The background and motives for safety were based on the view that safety is a necessity, a built-in part of business. The importance of safety was also partly based on the demands of the authorities or customer and of the surrounding society. On the other hand, such reasons were mentioned as secondary motivations for safety.

The result of our Delphi study is a consensus among the experts/stakeholders participating in the study about what it means when safety is an organizational value. On the basis of the results, we propose that having safety as an organizational value can be defined as 'a long-term commitment to having safety integrated as a positive value within all business operations and strategies'. When safety is genuinely an organizational value, this implies that the organization has a shared intrinsic motivation to strengthen safety.

Our survey concerning valuing safety at work revealed that, although safety is often considered a core value within organizations, the motivation for safety still lies in avoiding negative outcomes, i.e. financial sanctions. As regards valuing safety, there is a tendency to think – wrongly – that an individual's unsafe behaviour is mainly the result of his/her bad personal values and attitudes concerning safety. Instead, we need to understand that most safety behaviour at work results from how people experience that safety is (or is not) valued, communicated, rewarded, directed, demanded and managed within their organizations. Our survey confirmed that employees' values regarding safety are mainly influenced by organizational and managerial factors. This study revealed the importance of safety communication and the role of supervisors in encouraging safe work, and the interviews support these results. Strengthening safety as a value requires cooperation on safety issues between management and employees. Based on our study, different managerial practices can be recommended in order to manage and promote safety as an organizational value.

TIIVISTELMÄ

Monet yritykset kertovat turvallisuuden olevan niille ensiarvoisen tärkeää, mutta tarkoittaako se, että turvallisuus on niille arvo? Viime vuosina tehdyissä turvallisuustutkimuksissa on yhä useammin todettu, että arvoperusteisilla johdon sitoutumisella ja taloudellisilla näkökulmilla on ratkaiseva vaikutus turvallisuuteen. Turvallisuuden arvoa on kuitenkin tutkittu vain vähän, ja turvallisuusarvojen määritelmästä ja vaikutuksista on epäselvyyttä. Turvallisuusarvojen tukemiseen, edistämiseen ja levittämiseen liittyviä näyttöön perustuvia menetelmiä ei ole.

Tässä raportissa esiteltävä tutkimus antaa vastauksia näihin kysymyksiin: Pitävätkö yksilöt turvallisuutta arvona (syvälle juurtunut periaate tai ohjaava ajattelutapa) vai ainoastaan prioriteettina (yksi monista tärkeistä tekijöistä, joka on sovitettava yhteen kilpailevien tavoitteiden kanssa)? Kokevatko he, että heidän työnantajansa pitää turvallisuutta (sisäisenä) arvona vai (välineellisenä) tavoitteena, johon kannattaa pyrkiä, koska se vähentää tappioita ja voi vaikuttaa tuottavuuteen?

Arvo on kriteeri, jota ihmiset käyttävät – usein epäsuorasti – valitessaan ja perustellessaan toimiaan sekä arvioidessaan ihmisiä ja tapahtumia. Arvot ovat toiminnan taustalla olevia ajattelutapoja tai periaatteita, jotka ohjaavat organisaation sisäisiä menettelytapoja ja sen suhteita ulkomaailmaan. Niillä on merkittävä vaikutus yksilöiden ja ryhmien käyttäytymiseen, ja ne toimivat yleisinä suuntaviivoina kaikissa tilanteissa. Arvot ovat vakaampia, ja niillä voidaan olettaa olevan kestävämpiä vaikutuksia turvallisuuteen kuin silloin, jos on turvallisuus on ”vain prioriteetti”. Tässä raportissa tarkastellaan turvallisuusarvoja ja turvallisuutta tukevia muita arvoja liiketoimintastrategian, yrityskuvan ja yrityksen yhteiskuntavastuun yhteydessä.

Turvallisuusarvot ovat tärkeitä, koska ne ovat kaiken turvallisuuskulttuurin pohjana. Etenkin sääntelyn purkamisen, globalisaation, taloudellisen taantuman ja muuttuvan työelämän aikakautena arvot ja kulttuuri ovat vakaampia kuin johtamisjärjestelmät tai prioriteetit. Tällaiset arvot sisältyvät myös yritysten yhteiskuntavastuuohjelmiin. Toimitusjohtajilla ja tuotantopäälliköillä on keskeinen osa organisaationsa turvallisuusjohtamisessa ja turvallisuuden edistämisessä. Heidän sitoutumisensa riippuu viime kädessä heidän arvoistaan sekä organisaation ja sen keskeisten sidosryhmien arvoista. Varsinkin tällä tasolla turvallisuusarvot ja liiketoiminnan arvot ovat usein epätasapainossa, mikä johtaa ongelmiin ja vaarallisiin tilanteisiin. Tarkastelemalla turvallisuusarvoja ja ongelmia tämä raportti antaa kuvan mekanismeista, joiden avulla on mahdollista tuloksellisemmin vahvistaa ja edistää turvallisuusarvoja. Viime kädessä tavoitteena on sisällyttää turvallisuusarvot yrityksen arvoihin ja strategioihin.

Tämän tutkimuksen ensimmäisenä tavoitteena oli luoda yhteinen käsitys siitä, miten erilaiset keskeiset sidosryhmät – toimitusjohtajat/johtajat, henkilöstön edustajat, turvallisuusasiantuntijat ja tutkijat – määrittelevät turvallisuuden arvona. Toisena tavoitteena oli selvittää, mitkä ongelmat tai pullonkaulat on otettava huomioon sovellettaessa turvallisuusarvoja käytäntöön, miten organisaatiot voivat ratkaista ne tehokkaasti sekä miten turvallisuutta voidaan edistää tehokkaasti viestimällä ja omaksumalla se organisaation arvoksi.

Toteutimme ensin kuvailevan kirjallisuuskatsauksen, jonka tarkoituksena oli saada tietoa turvallisuusarvojen yleisestä taustasta ja kontekstista, määritellä turvallisuusarvo ja tutkia arvonäkökulmia. Kirjallisuuden pohjalta kehitimme haastattelumenetelmän ja haastattelimme 17:ää ylemmän johdon edustajaa 15 organisaatiosta viidessä Euroopan maassa (Suomi, Saksa, Iso-Britannia, Espanja ja Turkki). Haastattelujen tarkoituksena oli saada käytännön tietoa turvallisuusarvoista ja niiden vaikutuksesta organisaation toimintoihin. Sen jälkeen teimme Delfoi-tutkimuksen, jolla pyrimme luomaan yhteisen käsityksen siitä, miten erilaiset keskeiset sidosryhmät määrittelevät turvallisuuden arvona, esimerkiksi mitä turvallisuus organisaation arvona merkitsee, mitä arvoa turvallisuudella on organisaatioille, mitkä ovat tärkeimmät turvallisuuden arvoon vaikuttavat tekijät, mitkä tekijät ilmaisevat turvallisuutta arvona ja minkä tekijöiden avulla turvallisuus on tunnistettavissa arvoksi ja ehkä mitattavissa sellaisena sekä miten ”turvallisuutta organisaation arvona” perustellaan eettisesti. Lopuksi selvitimme kolmessa suomalaisessa yrityksessä. tehtyjen ryhmähaastattelujen ja kyselyjen avulla, miten eri organisaatioryhmät arvostavat turvallisuutta, millaisia arvoristiriitoja syntyy päivittäisessä työssä, päätöksenteossa ja arvoviestinnässä, miten organisaatiot edistävät ja levittävät käytännössä turvallisuutta arvona sekä mitkä tekijät yrityksissä ja organisaatioissa voivat vahvistaa turvallisuutta arvona.

Kirjallisuuskatsauksesta kävi ilmi, ettei turvallisuuden arvolle tai turvallisuusarvoille ole vielä selkeää ja laajasti hyväksyttyä määritelmää. Turvallisuuden arvo liittyy usein epäsuorasti turvallisuuden tärkeyteen organisaatiossa. ”Turvallisuus arvona” ulottuu kuitenkin pidemmälle kuin ”turvallisuus prioriteettina”. Organisaation arvoilla on strategisempi vaikutus kuin pelkillä prioriteeteilla. Ylemmän johdon edustajien haastatteluista ilmeni, että vaikka yrityksen arvot oli määritelty, turvallisuutta ei aina mainittu ydinarvona. Turvallisuuden katsottiin kuuluvan niin tiiviisti ydinliiketoimintaan, ettei sen nimenomaista sisällyttämistä yrityksen ydinarvoihin pidetty tarpeellisena. Ydinarvot vastaavat myös haastateltujen toimitusjohtajien/johtajien henkilökohtaisia arvoja. Turvallisuuden tausta ja perusteet pohjautuivat näkemykseen, jonka mukaan turvallisuus on välttämättömyys ja kiinteä osa liiketoimintaa. Turvallisuuden tärkeys perustui osittain myös viranomaisten tai asiakkaan ja ympäröivän yhteiskun-

nan vaatimuksiin. Toisaalta tällaiset syyt mainittiin toissijaisina perusteluina turvallisuudelle.

Delfoi-tutkimuksen tulos ilmentää tutkimukseen osallistuneiden asiantuntijoiden/sidosryhmien yhteistä näkemystä siitä, mitä turvallisuus organisaation arvona tarkoittaa. Tulosten perusteella ehdotamme, että turvallisuus organisaation arvona voitaisiin määritellä seuraavasti: ”pitkäaikainen sitoutuminen siihen, että turvallisuus sisällytetään myönteisenä arvona kaikkeen liiketoimintaan ja strategioihin”. Kun turvallisuus on aidosti organisaation arvo, sen perusteella voidaan päätellä, että organisaatiolla on yhteinen sisäinen motivaatio turvallisuuden vahvistamiseen.

Turvallisuuden arvostusta koskevasta kyselystä ilmeni, että vaikka turvallisuutta pidetään usein organisaatioiden ydinarvona, turvallisuuden perusteluna on edelleen kielteisten seurausten eli taloudellisten seuraamusten välttäminen. Turvallisuuden arvostukseen tai sen puutteeseen liittyen usein ajatellaan – virheellisesti –, että yksilön vaarallinen käyttäytyminen johtuu hänen kielteisistä henkilökohtaisista arvoistaan ja suhtautumisestaan turvallisuuteen. Sen sijaan olisi ymmärrettävä, että turvallisuuskäyttäytyminen työssä on useimmiten seurausta siitä, miten ihmisten mielestä heidän organisaatiossaan arvostetaan turvallisuutta, viestitään ja palkitaan turvallisuudesta sekä ohjataan, vaaditaan ja johdetaan turvallisuuden edistämistä (vai tapahtuuko näin ollenkaan). Kysely vahvisti, että työntekijöiden turvallisuutta koskeviin arvoihin vaikuttavat pääasiassa organisatoriset ja johtamiseen liittyvät tekijät. Tästä tutkimuksesta kävi ilmi turvallisuusviestinnän merkitys ja esimiesten rooli turvallisen työskentelyn edistäjänä. Haastattelut tukevat näitä tuloksia. Turvallisuuden vahvistaminen arvona edellyttää johdon ja työntekijöiden yhteistyötä turvallisuusasioissa. Tämän tutkimuksen perusteella voidaan suositella erilaisia johtamiskäytäntöjä turvallisuuden johtamiseksi ja edistämiseksi organisaation arvona.

TABLE OF CONTENTS

PART I - VALUE OF SAFETY AND SAFETY AS A VALUE

Value of Safety research project

Research report of work packages WP1-WP3

Henriikka Ratilainen[1] (Editor), Simo Salminen[1], Gerard Zwetsloot[2], Pia Perttula[1], Annick Starren[2], Wouter Steijn[2], Krista Pahkin[1], Linda Drupsteen[2], Vuokko Puro[1], Tuula Räsänen[1], Markku Aaltonen[1], Frank Berkers[2], Virpi Kalakoski[1]

[1)] Finnish Institute of Occupational Health (Finland)

[2)] TNO (The Netherlands)

Published on 2016-09-23 in SAF€RA technical report number 2016-01

https://projects.safera.eu/project/8

1 LITERATURE REVIEW ON THE VALUE OF SAFETY AND SAFETY AS A VALUE

1.1 Aim

The aim of the literature review was to review the scientific literature on the value of safety and safety as a value. Safety can be a value for organizations, for individuals (e.g. managers and workers) and for society at large. There are very few peer-reviewed scientific publications on the value of safety, other than on the economic value. In fact, the value of safety and safety values are implicit in most safety research (as the aim is usually to somehow contribute to the improvement of safety). However, it is only very seldom explicitly addressed in the scientific literature. Therefore, we have also included some non-peer-reviewed publications in this literature review.

We first focus on the value of safety and safety as a value. Though there is not yet an accepted consensus on what safety as a value means, there is still some literature wherein practical issues with respect to safety values are mentioned. While it is likely that the respective authors give different meanings to the concept of "the value of safety", it seems nevertheless relevant to give an overview of the literature on the impact of safety values on daily routines, and on factors relevant for implementation.

1.2 The concept of value

Before focusing on value of safety and safety as a value, we need to briefly explore how values are understood in general, other than the monetary value of something. In Table 1.1 we have listed some common definitions from dictionaries and, in summary, there are two different definitions:

1. value (especially in singular) is defined as the importance of something

2. values (especially in plural) are defined as beliefs or principles that guide behavior as well as judgements and decision making.

Table 1.1. Some definitions for value, values and core value(s).

Term	Definitions
value	"Importance or worth of something for someone" (English - English Dictionary 2015)
	"The importance, worth, or usefulness of something" (Oxford dictionaries 2016)
	"One's judgement of what is important in life" (Oxford dictionaries 2016)
values	"[O]perating philosophies or principles that guide an organization's internal conduct as well as its relationship with the external world. Values provide guidance for people on what is good or desirable and what is not. They exert major influence on the behaviour of individuals and teams and serve as broad guide lines in all situations." (British Quality Foundation 2016)
	"The beliefs people have, especially about what is right and wrong and what is most important in life, that control their behaviour" (Cambridge Dictionaries 2016)
	"A principle or belief that a person or organization views as being of central importance" (Oxford dictionaries 2016)
	"[O]perating philosophies or principles that guide an organization's internal conduct as well as its relationship with the external world. Values provide guidance for people on what is good or desirable and what is not. They exert major influence on the behaviour of individuals and teams and serve as broad guide lines in all situations." (British Quality Foundation 2016)
	"Set of concepts and ideals that guide someone's life and help them to make important decisions" (Collin 2009)
core value(s)	"The main commercial and moral principles that influence the way an organization is run and the way it conducts its business, and that are supposed to be shared by everyone in the organization from senior management to ordinary employee" (Collin 2009)
	"A principle that guides an organization's internal conduct as well as its relationship with the external world. Core values are usually summarized in the mission statement or in a statement of core values." (BusinessDictionary.com 2016)

Rokeach (2000, p. 2) has described values as "core conceptions of the desirable within every individual and society". On the other hand, Colley et al. (2013) defined values as beliefs regarding what is important, either for individuals, or for the organization as a whole. Meglino and Ravlin (1998) include also social learning in the definition when describing that values are a "constant set of core beliefs held by individuals concerning how they should or ought to behave over a broad range of situations" which are difficult to change in adulthood, but can be modified during the socialization processes experienced during life. Values are motivational elements (Meglino and Ravlin 1998). They give a reason to desire one alternative over another.

Schwartz (2012) lists six implicit main features of values. According to him, values are beliefs, refer to desirable goals, transcend specific actions and situations, serve as standards or criteria, and are ordered by importance. Also, the relative importance of multiple values guides action. These features concern all the values. However, there are different motivations or needs underlying the values (e.g. needs for control, variety, pleasure etc.). Values can serve individual needs as well as needs that are important for group functioning. Keller et al. (1992) have shown in their work value study that 40% of the variance in measured values of individuals was related to genetic factors, and 60% of the variance was associated with environmental factors and error variance. This means that the values of individual people can be influenced significantly by environmental factors, but also that there are personality factors that cannot be influenced.

Paarlberg and Perry (2007) investigated the question "Can workplace values be managed?". They found out that strategic values are motivating for employees to the extent that they reflect employees' internal affective, normative, and task-oriented values; a zone of existing values. According to Paarlberg and Perry (2007), values management is a social process that results from routine interactions, however, formal management systems provide opportunities to enhance the social interactions that are motivating to employees. They also described the process of aligning values being a social process that occurs through routine interactions between employees, managers, and even customers and other stakeholders, and the routine interactions that reinforce employees' existing values. They pointed out that middle managers play key roles in interpreting strategic values in terms of employees' values and employees' everyday work responsibilities, as well as communicating and rewarding performance toward those values. The middle managers are acting as integrators, connecting employees' individual values, derived from the societal, cultural, and religious experiences, with the organization's strategic practices. Paarlberg and Perry (2007) concluded that values can be managed to a certain extent, but not completely.

1.3 Safety as a value and the value of safety

There are many different definitions of values. However, when speaking about safety values, the number of definitions is more limited. There is no unanimously accepted definition or mutual understanding of safety (at work) as a value. Already in 1948, the United Nations Universal Declaration of Human Rights stated that "everyone has the right [...] to just and favourable conditions of work". In 1976, the United Nations International Covenant on Economic, Social and Cultural Rights reaffirmed that the above mentioned statement covers "safe and healthy working conditions" (Alli 2008).

Cooper (2001) has stated that the idea of 'safety is a value' is based on the "fundamental philosophy that all injuries are preventable and that the goal of zero injuries can be achieved". Zwetsloot et al. (2013b) call the "zero accident vision" the only ethically sustainable long-term goal for safety management. Values are learned from others but after that strengthened and moulded by individual's experiences and values can be changed through socialization. Organizations can set safety as a priority but that does not automatically include the value of safety, certainly not for all individuals. However, systematic and consistent prioritization of safety can be seen as a tool for sharing values and encouraging members of the organization to acquire them.

One can state that safety is a value in itself (Zwetsloot et al. 2013b). There is a good reason to say that safety at work represents a value in itself. Safety certainly belongs to what most people judge to be important in life (which was part of one of the definitions of a value, given above) (Zwetsloot et al. 2013b). In their white paper on Injury and Illness Prevention Programs (OSHA 2012), US OSHA quote the CEO of Parsons cooperation:

Establishing safety as a value rather than a priority tells our employees and our customers that safety is built into our culture, not something we do to merely comply with regulations.

The value of safety is expressed through the organization's safety policies, practices, and procedures (Sinclair et al. 2010). In safety-critical organizations, a framework supplied by value-focused thinking helps to understand decisions made by operators (Merrick et al. 2005). Safety values are defined by Newman and her co-workers (Newnam et al. 2012) as the importance associated with safety within an organization. According to Newnam et al., safety values are predictors of the safety information exchange between supervisors and employees. Newnam et al. (2008) concentrated on intrinsic value of safety, rather than extrinsic motivators, such as rewards and punishment.

Perceptions of workplace safety values are transmitted across levels of the organization. Fu and Chan (2014) defined safety values at Taipei International Airport as safety practices which are implemented even under the pressure of competing tasks. Safe-

ty is considered as a value and "having safety as a value" is a commonly encountered aspiration for organizations. For example, the Robert W. Campbell Award[1] identifies safety as a value by recognizing organizations that "uphold EHS as a key business value and link measurable achievement in EHS performance to productivity and profitability". Since values are motivational elements (Meglino and Ravlin 1998) and they give a reason to desire one alternative over another, they give a great potential when trying to improve safety performance. However, this does not give us a definition or further insight into the value of safety, or safety as a value.

1.4 Relations of value of safety to safety culture and climate

Safety values are closely connected with organizational culture. As for safety values, there is no unanimously accepted definition of safety culture. Organizational culture is defined as shared values and beliefs that interact with company's people, organizational structures and control system to produce behavioural norms (Edwards et al. 2013). On the other hand, Guldenmund (2000) includes beliefs and values about work, people, the organization and the community that are shared by most members within the organization as a part of organizational culture.

According to Schein (1997, 2007), there are three levels of organizational culture: basic assumptions, espoused values, and artifacts. Basic assumptions are the core of an organizational culture, although they cannot be directly perceived. Espoused values are values and rules of behaviour stated by the organization, and they are often expressed in official philosophies and public statements of identity. The visible aspect of an organization's culture is reflected in artifacts, which are identifiable and easy to measure, but it might be difficult to clarify their links with the underlying layers of the culture. The influence of the deeper layers of culture – the basic assumptions and values – on the members of the organization remains largely unconscious or even subconscious (Hofstede et al. 2010; Schein 1997, 2007), and is transferred to new members of the organization through implicit socialization processes. For a long-lasting safety improvement, a change in the organizational culture can be needed (Schein 2007, 2009), by not only limiting the change to the artifacts or espoused theories, but also extending the changes to the 'basic assumptions,' which are assumed to include internalized values (Giddens 1991).

According to Schein (2010), culture can be best thought of as what a group has learned through- out its history in solving its problems of external survival and internal integration. Its core is the shared, tacit assumptions that have come to be taken

[1] Robert W. Campbell Award. (2015). Recognizing Business Excellence in Safety and Health. The Campbell Institute 2015. Available at campbellaward.org. [28 July 2015].

for granted and that determine the members' daily behaviour. These assumptions are stated as norms of behaviour or as the way things are done around here; how, for example, safety issues are managed.

Schein (2014) also points out that the way in which people view safety and how cultural factors impact safety issues is also influenced by national cultures and, even more importantly, by occupational cultures. In every organization there are subcultures, which have their own subsets of assumptions on safety. For example, executives are concerned about the financial conditions, the designers are interested in process safety and the operators in coping with all the surprises of standardized operations (Schein 1996). These subcultures have their roots and origins in the occupations and professions, not merely inside the organization. There are also cultural variations of the occupations in different industries.

Safety culture concerns meanings, interpretations, attitudes, values, beliefs, rules and procedures related to safety (Díaz-Cabrera et al. 2007). Safety culture is seen as an organization's ability and will to understand what safe operations are, what risks an organization's activities involve, and how they can be prevented. It is also the ability and will to act safely, prevent the realization of risks, and to promote safety. Safety culture combines the experiences and perspectives of employees, the social phenomena of work communities, and organizations' operational processes (Reiman et al. 2008).

According to Reason (1997), a characteristic of a positive safety culture is a "just culture": an atmosphere of trust that encourages people to deliver OSH-relevant information and where everybody knows what is acceptable and unacceptable behaviour. Justice and reliable information, even if it is bad news, generates credibility and confidence in safety management. Reason also emphasized the importance of informedness and trust as values that are necessary elements of a good safety culture.

The definitions of safety culture and safety climate often share the same words, illustrating the weak boundary between organizational climate and safety culture. Safety climate describes individual perceptions of the value of safety in the work environment (Neal et al. 2000). Organizational safety climate is a specific form of organizational climate, which denotes the shared perception of safety values, norms, beliefs, practices, and principles that workers have of their work environments (Gyekye et al. 2012; Gyekye and Salminen 2009a,b). An anthropological view sees safety culture as a set of underlying beliefs, attitudes, values and assumptions shared by members of an organization (Edwards et al. 2013).

In addition, Díaz-Cabrera et al. (2007) found in the factor analysis of organizational safety climate a factor including the following values: values ruling fulfillment, values in sincerity

and participation, values of goal achievement, values in collaboration in goal achievement, values participating in safety promotion, values ruling observation, values contributing creative ideas, and values initiating in finding new solutions. Griffin and Neal (2000) developed a five-dimensional safety climate survey tool including a four-item scale about the degree to which managers were perceived to value safety in the workplace.

As stated by Amalberti (2015), "safety culture [...] is often cited as the final step in achieving an optimal level of safety..." [nevertheless having the lowest priority in the total of optimizing processes in many cases, which makes its effect restricted by earlier choices]. There can, however, be little doubt that (shared) values underlie also the decisions about technology, business opportunities, etc.

1.5 Safety-related supporting values

Dierdorf and Morgeson (2013) wrote that achievement (accomplishment and utilization of one's abilities), independence (reinforcement and stimulation of initiative and creativity), altruism (fostering harmony and service to others), status (advancement, recognition and prestige), and comfort (supportive and free from stress) were safety-related values. On the other hand, Colley and Neal (2012) had identified 42 concepts across a series of interviews, which were indicators of the value and importance ascribed to safety.

Gregory et al. (2009) mentioned five culture domains, associated with competing values:

1. Group culture, which included belonging to the group, cohesiveness, participatory decision making, and support from co-workers,
2. Development culture: flexibility and adaptation
3. Rational culture considering goal attainment, productivity, achievement and competition
4. Hierarchical culture: internally focused control, job security
5. Balanced culture including values associated with each domain are strongly held.

The basic values of security cover an emphasis on safety, harmony, and stability (Hystad and Bye 2013).

In the book of Townsend (2013) there is attention to safety values and beliefs. He analyses the values and beliefs of 11 companies and the UK Health and Safety Executive (HSE), based on the companies' CSR reports and a HSE report. Based on the idea that a value is what is important to the organization, he regards statements like "injuries are unacceptable" as a value. As a follow-up, Townsend analyses how consistently they then translate these values into "key themes and concepts" i.e. commitment, audits, worker/staff behaviour, competency, communication, skills, ability and proficiency, shared values and attitudes, motivation, and mutual trust and reciprocal dialogue.

Zwetsloot et al. (2013b) identified twenty-nine values and value related factors that are described in the literature as supportive to Health, Safety and Well-being at Work. These were clustered around seven core values. These seven core values were then grouped in three value clusters. The first value cluster is characterized by a positive attitude toward people and their 'being'; it comprises the core values of interconnectedness, participation and trust. The second value cluster is relevant for the organizational and individual 'doing', for actions planned or undertaken, and comprises justice and responsibility. The third value cluster is relevant for 'becoming' and is characterized by the alignment of personal and organizational development; it comprises the values of growth and resilience.

1.6 Mechanisms that form and strengthen organizational safety values

Values can be conveyed through organizational socialization, when leaders set the values of the organization and propagate them to employees. This requires that values serve some kind of function for the individual or they must be presented as the only possible interpretation of the situation (Meglino and Ravlin 1998). Some mechanisms have been found that strengthen safety values. For example, supervisor safety practices are associated with stronger safety values, and drivers were motivated to drive safely if they perceived that both their supervisors and the fleet manager value safety.

Management tend to be associated with global policies and safety culture, and so influence safety at an industry level. On the other hand, supervisors and workmates influence safety climate and group values and thus showed a greater influence on local safety performance. At the shop-floor level, the guidelines and values are modified or reinterpreted. Level of trust in workmates was the strongest predictor of involvement in near-miss analysis (Conchie and Donald 2006). Trust/mistrust attitudes towards management were identified as the strongest influence on safety performance (Conchie and Donald 2006). Trust is a necessary condition for the spread of safety values (compare with Reason 1997). Well-aligned words and actions send clear signals to employees that appropriate safety behaviour will be rewarded and inappropriate safety behaviour will be sanctioned.

Trade unions make workplace safety a high priority in contract bargaining. Safety motivation was related to the union and supervisor safety values, but safety knowledge was not related to safety values (Sinclair et al. 2010). When seafarers had high levels of hardiness, personal values had no effect on safety behaviour. On the other hand, when hardiness was low, conservation values (security) seemed to increase safety behaviour (Hystad and Bye 2013).

In learning from accidents, Saleh and Pendley (2012) used the concept of safety value chain. It identifies those who contribute to accident prevention and sustaining sys-

tem safety. It also highlights the agencies influencing and contributing to accident prevention and system safety. The safety value chain includes operators, technicians, engineers, system designers, managers and executives, shareholders, regulator representatives, safety inspectors, and accident investigators (Saleh and Pendley 2012). Gregory et al. (2009) listed managers' support, empowerment, mentoring and supporting teamwork as ways to improve safety values.

1.7 Impact of safety values on daily routines

It is known that CEOs and production managers play a key role in safety management and safety promotion in their organization. Their commitment depends ultimately on their values and those of the organization, and of its key stakeholders.

Safety and environmental matters are the first on the agenda, said an English CEO (Karr 1999). When managers espouse safety values in their speeches, employees perceive the leader's concern for safety as more genuine, and are therefore more likely to speak about safety issues (Halbesleben et al. 2013). Responsibility of Australian fleet managers in safety management could be acknowledged more formally, in order to strengthen the fleet manager's role to ensure the organizational approach to fleet safety. They also provide feedback to drivers on their safety performance in a work vehicle (Newnam et al. 2008). A supervisor who values safety is more likely to be committed to prioritizing safety within their work role tasks, and this tendency is consistent with their safety actions (Newnam et al. 2012). 88% of British senior directors indicated that employee morale and company reputation would be adversely affected by a poor health and safety culture (Smallman and John 2001).

In their study, Colley and Neal (2012) found that corporate values were more central to supervisors' schema than to senior managers' schema. Corporate values play an important role for supervisors in the way that they approach and deal with safety. Issues relating to the work environment, e.g. trade-off between safety and productivity are more central for senior managers than for supervisors.

When workers perceive their organization to be supportive, they also perceive management as valuing their safety (Salminen et al. 2013). Older workers had the best perceptions of safety, management's concern for workers' safety, and efficacy of safety programmes in place at the worksite (Gyekye and Salminen 2009a). Workers who perceived organizational support as relatively high considered their company's safety programmes worthwhile, good, useful, first-rate, and important more often than other workers (Gyekye and Salminen 2007).

Values influence employee perception of safety (Colley et al. 2013). Blue collar workers valued safe surroundings more than top managers in a large Finnish metal fac-

tory (Salminen and Koivula 2006). Trade unions' safety values influence safety outcomes through its association with higher safety motivation, showing a similar effect to that of supervisors' safety values (Sinclair et al. 2010). American contractors should emphasize organizational safety values to new workers during the selection process (Lai et al. 2011). Seafarers with a stronger emphasis on conservation values reported a higher level of safe behaviours (Hystad and Bye 2013).

Safety values are also important among American college students. They predicted safety practices among students. Female students were found to be more conscious about safety values than male students (Crowe 1995). In an American hospital, group culture and balanced cultures (with values necessary to operate in all four quadrants) achieve higher levels of patient satisfaction (Gregory et al. 2009).

Safety values are also included in questionnaires used at workplaces. For example, a social capital questionnaire includes items like feelings of safety and value of life and social agency (Kritsotakis et al. 2011). A balanced cultural profile is associated with better safety (Colley et al. 2013).

According to previous studies, we can say that a person's status in the company contributes to how they considered valuing safety affects daily routines. Top managers report that safety is at the top of agenda, and often it is held among the first issues in meetings. On the other hand, employees look at safety values in a more practical way concerning their personal safety.

1.8 Barriers for implementing safety-related values

Values cannot be easily implemented. It is relatively easy to espouse (safety) values, but "values have to be 'lived', by most individuals and be confirmed in social interactions before they are really internalized as 'shared values'" (Zwetsloot et al. 2013b) and become an integral part of the corporate culture. Implementing values therefore takes a lot of time, say 5-10 years. Nevertheless, such a long-term development can be regarded as implementing safety-related values.

Values set for the organization may lose their priority if an organization rewards value violation, or when individuals are forced to choose between conflicting values (Meglino and Ravlin 1998). Few studies have been done concerning barriers for implementing safety-related values. For example, managers in health care may be forced to espouse high safety values, without being able to follow-up on these expectations themselves. In addition, looking at only one indicator (e.g., frequency of injuries) may not represent the whole picture of safety (Halbesleben et al. 2013). In an Australian transportation fleet, it is uncertain whether senior-level managers had given super-

visors directives on how to manage their fleet safely (Newnam et al. 2008).

(Colley and Neal 2012) argue that bottlenecks in transferring and reinforcing the safety message may occur because of the communication styles and differing values of supervisors. Managers are more likely to emphasize components of safety that are prominent in their individual mental representation of safety (such as corporate values and organizational safety priorities), and pay less attention to topics that are central to the representations of employees (e.g. practices, procedures, and training). Employees often do not share unified beliefs about the value of safety with managers.

Line managers have to manage the dual goals of productivity/efficiency and safety. If a productivity schema is more salient and important in the thinking of individual managers, they may over-emphasize productivity and under-emphasize safety. Information that is communicated to employees that is inconsistent with their existing schema may not be recalled as easily and may be given less attention or even ignored. When these reasons are combined, it becomes important to develop and implement strategies to minimize miscommunication arising from misaligned safety schema (Colley and Neal 2012).

Prevention of occupational injuries should be focused on concerns with safety and responsibility (Higgins 2002). The threat of work stoppages or grievances should increase management awareness about safety concerns and increase the likelihood that existing policies are followed (Sinclair et al. 2010).

These studies showed that barriers related to safety values are often connected to the wider culture in corporations.

1.9 Corporate social responsibility

In our study, we regard organizational safety as a vital aspect of corporate social responsibility (CSR), and as an aspect inherent in any business and production processes, which is important for the corporate identity. This is most clearly the case in companies committed to "vision zero": they feel their identity does not allow for (serious) accidents (Zwetsloot et al. 2013a).

There are at least 37 different definitions of corporate social responsibility (CSR) (Carroll 2015). CSR is a form of company self-regulation integrated into a business model. CSR policy functions as a self-regulatory mechanism whereby a company monitors and ensures its active compliance with the spirit of law, ethical standards and national or international norms. The term "corporate social responsibility" became popular in the 1960s and has remained a term to cover legal and moral responsibility more narrowly construed. Davis (1973) insisted that social responsibility begins where the law ends. On the other hand, Epstein (1987) connected corporate social responsibility and business ethics together into corporate social policy process. Buytendijk (2010,

p. 124) wrote that a moral discussion on corporate social responsibility was debated in the 1980s, but now it is an acceptable standard set of behaviour.

According to Carroll (1979), the first conceptual model of corporate social performance had three dimensions: 1) corporate social responsibilities, 2) the social issues must be identified, and 3) a response philosophy be chosen. Based on these dimensions, he presented the following definition: "The social responsibility of business encompasses the economic, legal, ethical and discretionary expectations that society has of organizations at a given point in time" (p. 500), where legal, ethical and discretionary aspects were borrowed from Aupperle et al. (1985). In the empirical test of 241 CEOs, Aupperle et al. (1985) found a strong inverse relationship between the economic and ethical dimensions, which suggested a natural conflict of strategy. Later, Carroll (1983) replaces the discretionary expectations by a voluntary or philanthropic function. Carroll (1991) summarized that "the CSR firm should strive to make a profit, obey the law, be ethical, and be a good corporate citizen".

The World Business Council for Sustainable Development defined corporate social responsibility as "the commitment of business to contribute to sustainable development (Holme and Watts 2000), working with employees, their families, the local community and society at large to improve their quality of life". On the other hand, Buytendijk (2010, p. 172) defined corporate social responsibility as "a balanced approach for organizations to integrate social and environmental concerns in business operations in a way that aims to benefit the organization and its internal and external stakeholders". Corporate social responsibility is only one side of sustainability. The other researchers see that the social responsibility of corporations is to maximize profits (Friedman 1962), whereas the others see that corporations have a moral obligation to society. Based on his lexicographic view of social responsibility[2], Johnson (1971) suggested that strongly profit-motivated firms may engage in socially responsible behaviour.

Corporate social performance has been found to be positively related to both past and future financial performance. Thus, good management and corporate social performance are positively related (Waddock and Graves 1997). Corporate social responsibility is highly correlated with the level of research and development (R&D) activities in the company but not with financial performance (McWilliams and Siegel 2000). Based on the 31 studies, Ullmann (1985) concluded that there is no discernible relationship between corporate social performance and financial performance. The reasons are a lack of good data and valid, reliable measures.

[2] In the lexicographic view of social responsibility, a company pays attention to social issues only after meeting its profitability goals.

In the long run, corporate social responsibility builds corporate brand image, strengthens stakeholder–company relationships, and enhances stakeholders' advocacy behaviours for the company (Du et al. 2010).

Negative effects of corporate social responsibility were argued by Henderson (2001). He insisted that corporate social responsibility represents a clear break from traditional corporate value-setting. In the developing world, companies can benefit from corporate social responsibility, for example through the reduction in welfare fees they are required to pay. From a sociological point of view, corporate social responsibility is best analyzed based on the world-capitalism paradigm (Shamir 2011).

Carroll (2015) has presented three scenarios about the future of corporate social responsibility. In the Gloomy Scenario, the concept faded from the scene and disappeared from business's agenda. The Hopeful Scenario is more optimistic, assuming that companies around the world increase their corporate social responsibility programmes. The Probable Scenario says that at least three factors – business acceptance, global growth and academic proliferation – keep the concept of corporate social responsibility alive and well. He assumed that the last one will be the trajectory for corporate social responsibility over the coming five years or more.

Elkington (1997) introduced the framework of the triple bottom line (TBL or 3BL), by adding (apart from the economic bottom line) two more bottom lines; social equity and environmental factors, also known as 3P's: People, Planet and Profit. Fisk (2010) states that the concept of 'People, planet and profit' is much more than the conventional idea of CSR, which he describes as compensating the damages already done. Henriques (2004) has noted that the TBL approach is necessary for sustainability, but on its own is not totally sufficient. Fonseca (2015) has suggested extending the TBL by adding 'personal and family happiness' as a fourth dimension. There are also other suggestions for additional dimensions, e.g. how organizations treat their employees[3], progress[4], spirituality (Inayatullah 2005) and compassion[5]. Dialogue with stakeholders is often regarded as vital for CSR. It can hereby be useful to distinguish between

[3] Lawler E.E. (2014). The Quadruple Bottom Line: Its Time Has Come, Forbes, forbes.com/sites/edward-lawler/2014/05/07/the-quadruple-bottom-line-its-time-has-come/.

[4] Cambridge Leadership Development. (2013). Quadruple Bottom Line for Sustainable Prosperity. Available from: cambridgeleadershipdevelopment.com/quadruple-bottom-line-for-sustainable-prosperity/. [29 February 2016]

[5] The Values-Based Business. (2014). Compassion as the fourth bottom line?. Available at http://valuesbased.biz/2014/08/10/compassion/valuesbased.biz/2014/08/10/compassion/. [29 February 2016].

external and internal stakeholders, the latter being the employees (who have a natural interest in safety and health at work) (Zwetsloot and Starren 2004).

The value that safety has for organizations can only partly be expressed in monetary terms, because issues like trust, better industrial relations, or avoiding painful conversations with relatives of victims cannot be expressed adequately in monetary terms. The focus in safety management is usually on the "rationalities of prevention", doing things right, which implies an operational focus. When this is combined with value management and doing the right things (Zwetsloot 2003), a strategic approach to safety management is needed. Defining the value of safety in the context of business strategy and CSR seems a logical next step for safety improvement.

1.10 Conclusions

With the literature review we aimed to provide information on the general background and context of safety values, to define safety value, and to explore value perspectives. The literature review offers essential background information for the development of methods (surveys, interviews) presented in the next chapters.

Key Issue

The following conclusions can be drawn from the literature review:

1. There is not yet a clear and broadly accepted definition of the value of safety or safety values.
2. Safety is a value in itself, associated with a basic human right.
3. The value of safety is often implicitly associated with the importance associated with safety in the organization.
4. "Safety as a value" goes beyond "safety as a priority". Organizational values have a more strategic impact than priorities. They can also be expected to have implications for a longer period, as priorities may easily change, while shared values are much more stable over time.
5. There are several safety-related values that are important for developing or supporting safety practices and/or safety culture. The most well-known are justice (Dekker 2007; Reason 1997), trust and informedness (Reason 1997). Trust between managers and employees, as well as a just culture seem to be necessary preconditions for the spread of safety values.
6. Safety values are closely related to organizational culture. But safety culture is a broader concept (also with many definitions), which includes, in addition to values, norms, beliefs, practices and principles that can be related to safety.
7. Top managers and supervisors can strengthen safety values by consistent actions.
8. It is important to distinguish between values that are really shared and lived-up to, and espoused values, which are mainly communicated verbally and in writing. When there is a difference between the two, employees will not believe the espoused values. Employees look at safety values in more practical ways than managers and often do not share the same safety values as managers.

2 INTERVIEWS WITH STAKEHOLDERS

2.1 Objectives

The second phase of the VALOSA project involved interviews with senior managers, to obtain practice-based information on safety values and their impact on an organization's functions. The aim of the interviews was to find out:

- How safety values are defined
- What are the background and motives for safety
- How values are shared
- How values affect daily routines

The information gathered in interviews was used to develop the topics and questions for the Delphi study, which is discussed in chapter 3.

2.2 Data

Seventeen CEOs or top managers in 15 organizations from five European countries (Finland, Germany, United Kingdom, Spain, and Turkey) were interviewed. The organizations represent different sectors: Industrial services, Construction, Production, Trade, Transportation & Logistics, Waste, Power plants and Food. The number of employees working in the organizations varied from 100 to 70000. The interviewed CEOs and managers had up to 16000 subordinates. Some of the organizations were global companies.

2.3 Method

The semi-structured interview method was developed based on the literature review. The interviews were carried out as face-to-face interviews or using telephone or Skype/video meeting connections. A summary of the interview was sent to the interviewee for revision and comments when desired by the CEO/manager. Each interview lasted approximately one hour, and covered:

- Background information of the interviewee and organization
- Corporate values (core values, meaning of safety)
- Background and motives for safety
- How an organization shares the value of safety
- Values in everyday work (motivation, dilemmas on value conflicts, value differences in different personnel groups)

2.4 Results

2.4.1 Corporate values

In every company concerned by the interviews, corporate values were defined and some of the CEOs/managers mentioned that values were defined together with the personnel. In most cases, there were five core values, for example on respect, quality or safety. However, safety was not always mentioned as a core value, since safety was seen as so embedded in the core business (demonstrated in the mission statement) that it was not regarded necessary to also include safety explicitly in the company's core values. Safety culture was seen to "dominate" organizational culture: safety is an "umbrella of core values".

Safety was seen as:

- a priority, more important than productivity or any other thing
- a quality of work/product (sign of an expertise, efficiency of production)
- an investment for employees and the future of the company
- a goal, but also as an objective: a part of one's everyday work

The core values also corresponded with the interviewed CEO's/manager's own personal values. According to the CEOs/managers, it is important that the same values are shared also in personal life; thus one can commit themselves to the company's values, and can defend the values and "walk the talk".

2.4.2 Background and motives for safety

The background and motives for safety were based on the view that safety is a necessity, an integrated/built-in part of action/business or the core of the business. Safety risks and problems were seen as signs of poor management: an answer to how well the business is managed. The company was also seen to be responsible for taking care for human well-being (both their health and safety), the families of employees and society. Good safety and good working conditions were also seen as a way to attract employees, to commit them to the company: "Safety costs money, but in return you get: involvement and passion for the job."

The people interviewed perceived good safety to be a sign of:

- good business
- good management
- a responsible and respected employer
- engaged employees

The importance of safety was also partly based on the demands of the authorities or customer and the surrounding society: Legislation and instructions of authori-

ties, information requirements (e.g. audit, accidents reports) of customers, reputation among customers and in the society. These reasons were, however, mentioned as secondary motivations for safety. As one CEO said: "Neither the legislation nor the customers set pressure; the company is ahead of them". It is the companies themselves that have the responsibility for safety. Taking care of the company reputation was seen as one of the factors which motivates companies to do their best in safety. The government's role is important to control, for example for the development of new equipment, or chemicals, however, it should be done with trust and not only with more paperwork. All this also requires that the company can afford and have resources to take care of safety. It was mentioned that the societal responsibility and the costs requirements do not always go together.

2.4.3 Sharing values

The most common way to share the value of safety was communication. Regular (managerial) meetings (safety as the first thing in the discussion list), safety walks, information sessions, leaflets, posters, videos, campaigns and yearly safety events were mentioned as ways to communicate with employees on safety related issues. Employees were also invited and encouraged to 'blow the whistle' or leave a complaint in a safety box about their safety concerns. The spreading of the safety story throughout the organization was mentioned as a much better way of dealing with safety than with the standard toolboxes and audits.

The importance of role behaviour of the management was also emphasized in the CEO/manager interviews. Management visits to the workplace were seen as a good way of showing the value of safety for employees. Opportunities to discuss with management were raised as a key solution especially in cases where the company wanted to modify their safety culture. In one of the studied companies, the CEO had small group meetings with all of the employees to spread the safety message.

Core values can be used in communication and strategy anchoring. In addition to this, values have been useful in cases of problems with an individual's behaviour (behaviour is in conflict with the organization's values). Values were seen as an excellent instrument to give constructive feedback in such situations and to open up discussion.

The second most common way to share the value of safety was training. In particular, orientation of new employees was mentioned as a way to share the value of safety. However, sometimes all employees get regular training on safety related issues. Also a culture of continuous professional education was mentioned as a goal of the company. In some cases, compatibility with a company's values is explicitly used as selection criteria during recruitment.

The third way to share the value of safety was the company's development climate: the openness to new ideas, continual development of practices and products, following the development in other companies or field of business. These were often mentioned as a "good practice", a sign that the company values safety and does its best to improve it.

Interviewees also mentioned transparent reporting for accidents and near misses; an open process to investigate accidents and near misses; and yearly self-evaluation or measurement of safety changes work habits/proactive behavioural measures. In some companies, the aim was also to develop measurement to be more proactive, not only measures of things that had already happened or almost happened. Instead, the aim was, for example, in future to analyze the data to find 'tip of the iceberg' issues or problems.

Less commonly mentioned ways were:

- use of safety bonuses: sometimes it was for management only, but in some cases for each employee
- an annual performance appraisal of employees (a tool to discuss the gap between managers' and employees' own perceptions)
- involvement of supervisors and employees in decision-making
- fair and honest project calculations
- co-operation with other companies, networks, and universities or schools
- a company's own initiative to organize once or twice a year a high-level meeting on safety together with other parties

2.4.4 Values in everyday work

The CEOs/managers also recognized some challenges in successfully sharing the safety values of the company in everyday work. The challenges inside the company are related to:

- employees' attitudes towards safety, complying with regulations and standards
- the dilemma of the costs of best safety available and the financial situation/decision

To tackle employees' attitudes towards safety, different approaches are used. For example:

- motivating the less motivated people was seen as the duty of managers/supervisors
- use of fast and flexible work habits in the tasks in which safety is required
- paying attention to planning and scheduling, not accepting haste as an excuse
- "competing" on safety

The attitudes towards using money (pay) as a way to motivate employees were contradictory. Whereas in some companies good wages were used as a source of motiva-

tion, in others they were not – we don't offer a salary: we offer a future, a perspective.

It was recognized that the high ambitions on professionalism and craftsmanship sometimes lead to frustration, e.g. in case of disappointments when things don't work out because of planning/money issues. This can be a trigger for unsafe acts. Also the need to innovate and find new ways of working can be exciting and unsafe at the same time. Finding the right balance in these issues was seen as a challenge.

The CEOs/managers saw the safety attitudes as an individual-based issue and, for example, gender was not seen to have a role in it. The differences were seen between individuals in every group. However, views related to the role of age differed. Sentence should become: Some CEOs/managers said that younger employees have better safety values and culture compared to older employees; while some saw older employees as opinion leaders. Some said that young employees might face more accidents, but it's about lack of skills and lack of understanding of risks, and some said that young employees used more often personal protective equipment than older ones. Some saw differences in values and safety culture between different locations. However, it seems that the main problem is that risk is not recognized, which is why employees continue to work in unsafe ways or situations.

The challenges related to the surrounding society are:

- (Sub)contractors' safety values or quality standards: e.g. in the common workplace, where the habits of different companies do not match
- Country culture: e.g. attitudes towards safety, education
- Global situation: e.g. conflict areas (general safety level in a country)
- EU directives on governmental tendering: e.g. suppliers are competing on price only, and that safety qualities of products and services are not considered

To tackle the in consistency of company's own safety values and requirements and the values and requirements of (sub)contractors, some companies offer safety training to their contractors or require, for example, a general occupational safety card.

2.5 Conclusions

The interviews showed that in every company the corporate values were defined. However, safety was not always mentioned as a core value, since safety was seen so much embedded in the core business (demonstrated in the mission statement) that it was not regarded necessary to also include safety explicitly in the company's core values. The core values also correspond with the interviewed CEO's/manager's own

personal values, thus they could commit themselves for company's values, can defend the values and "walk the talk".

Safety was seen as:

- a priority, more important than productivity or any other thing
- a quality of work/product (sign of an expertise, efficiency of production)
- an investment for employees and the future of the company
- a goal, but also as an objective: a part of one's everyday work

The background and motives for safety were based on the view that safety is a necessity, an integrated/built-in part of action/business or the core of the business. The importance of safety was also partly based on the demands of the authorities or customer and the surrounding society: Legislation and instructions of authorities, information requirements (e.g. audit, accident reports) of customers, reputation among customers and in the society. These reasons were, however, mentioned as secondary motivations for safety.

Good safety is a sign of:

- good business
- good management
- responsible and respected employer
- engaged employees

The most common ways to share the value of safety were

- communication (regular meetings, different kind of information material, joint discussions)
- training
- continuous development of practices and products

3 DELPHI STUDY

As the literature review showed (cf. chapter 1), there is no generally accepted definition for "safety as an organizational value" or "having safety as a value". Along with exploration of the definition and possibilities of the concept of a safety culture, the question of the relationship between organizational values, safety as a value, and safety has arisen. To state that safety is a value or core value is very abstract and the meaning in practice is unclear. Through the Delphi study, we aimed to fill that gap.

3.1 Objectives

The aim of the Delphi study was to develop consensus on:

1. a) what it means when safety is an organizational value and b) the value safety has for organizations (i.e. added value)
2. the most relevant factors that influence the value of safety
3. factors that are expressions of having safety as a value and can be used to recognize or perhaps measure safety as a value
4. the ethical justification of "having safety as an organizational value"

3.2 Data collected

The sample was gathered amongst European safety experts from various backgrounds and positions who were deemed to have a valuable (expert) opinion on the topic of safety. Various CEOs and production managers, safety engineers, workers or workers' representatives, representatives of local or national authorities (including inspections), safety researchers or experts, and (social and privacy) insurers spread over Europe were invited. The connections were received via the researchers' professional networks, via the participant lists of safety conferences, and through a list obtained from www.CEOemail.com.

All respondents were invited via a personal email. A link to the online questionnaire was included in this email. All questionnaires were filled out via TNO's online survey system. The questionnaire was available in Dutch, English, and Finnish and respondents were able to choose their preferred language. The first round took place in the period between May and July 2015. On May 27th, the first invitations were sent and on June 8th a reminder was sent. The round was closed on July 3rd. Respondents were given a short introduction to the purpose of the Delphi panel before being presented with the various prepared statements.

Round 2 took place in November 2015. Participants were invited on the 3rd of November and reminders were sent on the 19th. This round was closed on the 23rd of

November. During the second round, the panel was given a summary of the results from the first round and the panel members received an overview of the responses for the items where no consensus had been found in the first round. Concerning the latter, the experts were first asked to reflect on the overview and their response, and secondly, whether they would like to revise their original score.

For the first round of the Delphi panel, 750 individuals were approached by email to participate in the first round of the Delphi panel. This included 257 professionals from the personal networks of the involved researchers and 493 additional CEOs, whose contact information had been obtained through www.CEOemail.com.

In total, 111 individuals started the questionnaire, indicating a total response rate of 14.8%. However, this response rate is biased since only 15 individuals from the list of 493 CEOs responded (response rate 3.0%). The response rate from the personal network was 37.3% with 96 participants.

Only individuals who had less than 50% missing values were included in data analysis, leaving 82 (73.9%) individuals (6 from the CEO list). Figure 3.1 and 3.2 show the distribution of respondents' self-reported backgrounds and functions. Individuals from 17 European countries participated. Furthermore, it was known that 65.9% were male and that 50.0% were older than 50, 39.0% between 35 and 50, and 7.3% younger than 35 (3.7% missing).

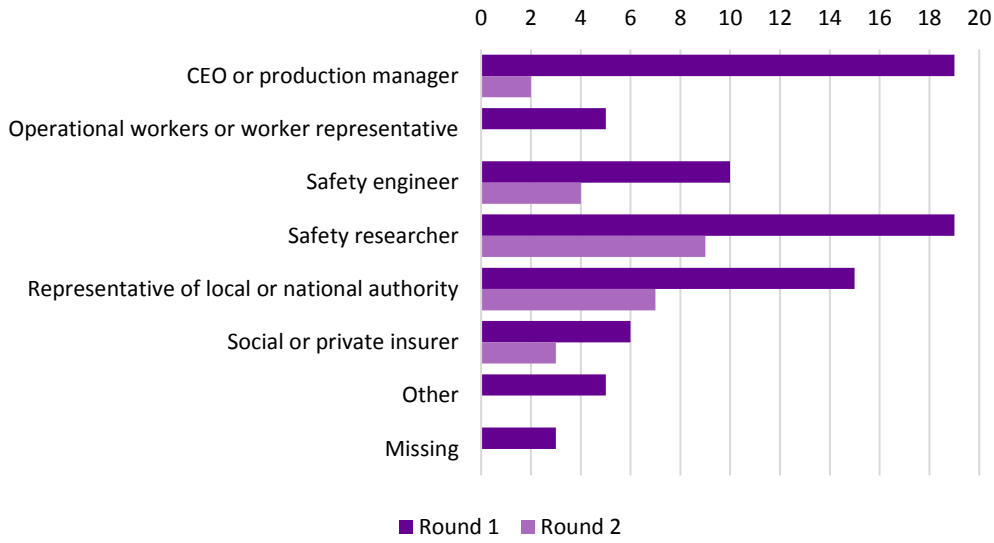

Figure 3.1 Backgrounds of the respondents participating in the Delphi panel.

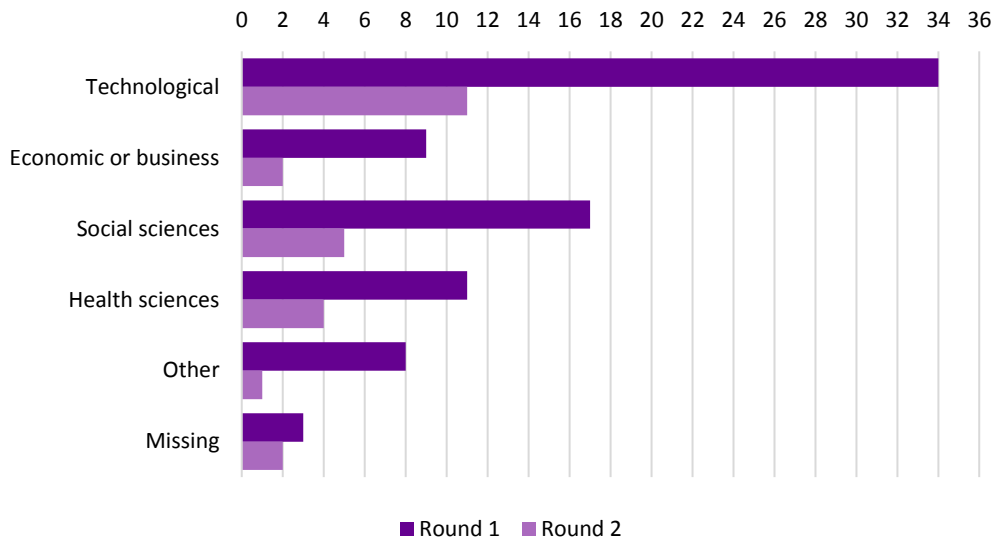

Figure 3.2 Functions of the respondents participating in the Delphi panel.

The 82 participants who completed round one were invited to participate in round two. In total, 36 respondents started with the questionnaire from round 2 (43.9%). Only 25 participants (2 still from the www.CEOemail.com list) had fewer than 50% missing values and were included in the analysis. Figure 3.1 and 3.2 also provides the self-reported backgrounds and functions for the participants of round two. Concerning the participants from round 2, 65.2% were male and 40% were older than 50, 40% between 35 and 50, and 12% younger than 35 (8% missing).

3.3 Method

A Delphi study is frequently used to develop consensus on what a specific new concept or development means, especially when opinions are expected to be diverse, and to define what factors are relevant for addressing a new complex issue, or what factors should be regarded as relevant for future developments. Therefore, in this part of our study we decided to use a Delphi panel to answer our research questions. Delphi studies have been widely used to collect the opinions of experts on various subjects (Buccini et al. 2009; Robinson et al. 2015; van Scheppingen et al. 2015). A Delphi study generally consists of several phases, or rounds (Martino 1972; Hsu and Sandford 2007; Yousuf 2007), and provides a systematic methodology to collect the opinions of a small but knowledgeable sample of experts to arrive at a meaningful consensus. Classical Delphi studies consist of four rounds, however two rounds can also be sufficient (Martino 1972; van Scheppingen et al. 2015). In this study, a questionnaire was developed addressing several aspects re-

lated to safety as an organizational value. This questionnaire was presented to the Delphi panel in two rounds.

The input for the structure and the items of the Delphi study were based on the literature study and the interviews with experts and relevant stakeholders that were also part of the VALOSA project. First, the literature study was conducted to explore the relatively unknown field of safety values. Based on these findings, we developed a structured interview format for one of the most important stakeholder groups, which is seldom involved in safety research: senior managers. This has led to the following five main topics for the structure for the Delphi questionnaire:

1. What having safety as a core value exactly means for an organization
    a. When safety is an organizational value,
    b. The value safety has for organizations
2. Factors that influence how safety is valued within organizations
3. The manifestation in an organization of having safety as a value
4. The ethical justification of having safety as an organizational value.

All items in these categories of the Delphi study have been derived from the literature and the earlier interviews. The resulting questionnaire includes a list of 107 statements or factors considered relevant to understanding safety as an organizational value. The items are structured according to the four main topics, which differ in content but also in response format. Table 3.1 presents an overview of the response formats and the number of items in the Delphi questionnaire for each topic. The individual statements from the Delphi study are shown in chapter 3.5. In the first round, the respondents were given the option to suggest additional statements or factors thought to be lacking. These suggestions were taken into consideration for the second round.

Table 3.1 Summary of characteristics of the Delphi questionnaire

	Topic	Items	Answering scale
1	**What does having safety as a core value exactly mean for an organization?**	**38**	
	a) When safety is an organizational value, this [means that safety is]…	21	5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).
	b) If safety has value for organizations, this implies that…	17	
2	**Factors that influence how safety is valued within organizations**	**39**	
	a) Developments in national and international society	6	11-point scale ranging from -5 (very negative influence) to 5 (very positive influence) with 0 in between as indicator of the belief that the factor has no influence
	b) External factors	9	
	c) Organizational factors	5	
	d) Business values	14	
	e) Personal initiatives	5	6-point Likert scale of 0 to 5, assuming the initiatives are likely to have a positive affect (or else they would not be undertaken)
3	**How is having safety as a value expected to manifest in an organization?**	**24**	
	a) Visibility in culture and behaviour	9	6-point Likert scale ranging from 0 (not characteristic at all) to 5 (very characteristic).
	b) Visibility in management actions	5	
	c) Visibility in organization	10	
4	**What is the ethical justification for having safety as an organizational value?**	**6**	5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree)

3.4 Analysis

The main aim of the Delphi panel is to achieve consensus. Since the survey items used for this Delphi study make use of several different answer scales, two different sets of criteria were required for determining consensus. Table 3.2 summarizes the criteria for consensus for each topic.

For topics 1 and 4, the direction of consensus was determined by the median: a median lower than 3 meant consenting disagreement, a median higher than 3 meant consenting agreement, and a median of 3 indicated a consensus that respondents neither agreed nor disagreed.

For both topics 2 and 3, consensus was determined by looking at the distribution of the responses over the groups. Responses falling in a certain category were regarded as consensus if they exceeded 60% and none of the other categories had more than 25% of responses.

When considering the results, it is important to note that the fact that there was no consensus among the Delphi panelists does not mean that there was consensus that safety does not contribute to these values.

Table 3.2 Summary of criteria for consensus in the Delphi study.

	Topic	Answering scale	Criteria for consensus
1	**What does having safety as a core value exactly mean for an organization?**	5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).	Interquartile range (IQR) 1 or lower ≥50% of all responses (those between the 25th and 75th quartiles) fall within 1 point of the scale.
2	**Factors that influence how safety is valued within organizations**	11-point scale ranging from -5 (very negative influence) to 5 (very positive influence) with 0 for 'no influence'	Category 1: Respondents who consider the factor to have a negative influence (-5 to -1) Category 2. Respondents who consider the factor to have no influence (0) Category 3. Respondents who consider the factor to have a positive influence (1 to 5)
		6-point Likert scale of 0 to 5	Category 2. Respondents who consider the factor to have no influence (0) Category 3. Respondents who consider the factor to have a positive influence (1 to 5)
3	**How is having safety as a value expected to manifest in an organization?**	6-point Likert scale ranging from 0 (not characteristic at all) to 5 (very characteristic).	1. Respondents who consider the statement not to be characteristic (1) 2. Respondents who consider the statement a little characteristic (2 to 3) 3. Respondents who consider the statement very characteristic (4 to 5)
4	**What is the ethical justification for having safety as an organizational value?**	5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree	IQR 1 or lower ≥50% of all responses (those between the 25th and 75th quartiles) fall within 1 point of the scale.

3.5 Results

3.5.1 Safety as an organizational value

In the Delphi study, 21 statements represented possible meanings of safety as an organizational value. There was consensus among the respondents concerning twenty of these statements in the first round (see Table 3.3).

There was no consensus for one statement only: When safety is an organizational value this means taking responsibility for the safety of the local community. In the second round, this non-consensus was confirmed. In the second round, clarifications for the disagreement were given:

- It seems more appropriate that safety as an organizational value concerns the organization, and not the local community
- This is too idealistic, especially for SMEs, which account for more than 95% of companies
- The current situation in our country shows that you have to start with the internal working environment, include safety aspects in work with subcontractors, sharing experience with other companies, etc. and only then should you take responsibility for the local community.

Table 3.3 The consensus statements on "when safety is an organizational value"

When safety is an organizational value, this means that safety is…
➢ … a core aspect of all business processes
➢ … part of responsible operations
➢ …. a good investment in a sustainable future
➢ … a moral obligation
➢ … a core competence of professional skills
➢ … a binding factor between companies and society
➢ … more than calculating costs of accidents
When safety is an organizational value, this …
➢ … means taking responsibility for the safety of all employees
➢ … means that safety belongs to everyday business activities and decisions
➢ … means important safety investments are made despite the costs
➢ … means that safety is linked to the mission of the organization
➢ … means that safety is mentioned in the organization's core values
➢ … means that safety belongs to 'the genes' of the organization
➢ … means there are long-term ambitions to improve safety
➢ … means that safety is an important aspect of personnel development
➢ … implies a long-term commitment to safety
➢ … ensures that future managers will be committed to safety
➢ … ensures high safety standards (even in difficult periods)
➢ … generates a supporting work culture (climate) for safety
➢ … makes employees feel safe

3.5.2 The value safety has for organizations

The value that safety has for an organization was addressed by 17 statements. In these statements, safety is not regarded as a value in itself, but primarily as a factor that (also) contributes to other values. The first round resulted in consensus for 12 of these statements, and in the second round positive consensus was achieved for two additional items (see Table 3.4). No consensus was generated for three of the statements. These are presented in Table 3.5, along with some clarifications given by the respondents of the second round.

Table 3.4 The consensus statements on "the value safety has for organizations". Items marked with an asterisk only saw consensus in the second round.*

If safety has a value for organizations, this implies that safety ...
➢ ... contributes to good business
➢ ... contributes to trust of employees in the management
➢ ... contributes to better relations between employer and employees
➢ ... contributes to better relations with the local community
➢ ... contributes to the attractiveness as an employer
➢ ... contributes to the corporate image of a reliable company
➢ ... contributes to the well-being of the personnel
➢ ... is regarded essential for the continuity of production
➢ ... is appreciated by customers
➢ ... means that the organization is 'in control' of its production
➢ ... helps avoiding economic loss
➢ ... means that safety is an aspect of environmental protection
➢ ... contributes to the marketing of products or services*
➢ ... helps to avoid painful conversations with relatives of victims*

Table 3.5 No consensus statements on "the value safety has for organizations".

No consensus statements	Explanations given
If safety has a value for organizations, this implies that safety contributes to better use of industrial assets	Pro: I see safety and reliability as tightly coupled in the production process Contra: In some cases, safety is not necessarily helpful to use resources.
If safety has a value for organizations, this implies that safety is key to delivering industrial services	Pro: if safety is valued highly, the service delivery should also put special emphasis on safety issues. Contra: It could perhaps improve industrial services, but it is not key. This is context dependent
If safety has a value for organizations, this implies that safety will lead to lower insurance costs	Pro: the impact depends on the national system of insurance. But all in all, insurance costs should decrease Contra: Insurance costs mainly depend on other factors In my country, social insurance against workplace accidents and diseases is compulsory, with premium rates identical for all companies (e.g. banks and construction companies pay identical premium rates)

3.5.3 Influencing factors

With influencing factors, we aimed to obtain the respondents' expert opinions on factors that influence the value of safety, and whether this influence was positive or negative. It can be seen that most factors were considered a positive influence and for six statements no consensus was found.

In the first round, consensus was reached on 33 out of 39 statements. Only economic crises were seen to negatively affect the way in which safety is valued in organizations. All other statements, like media attention to accidents, were commonly viewed to have a positive effect on value of safety in organizations. In addition to the 33 items of the first round, consensus was achieved on one additional item after revisions in the second round, which was the effect of the business value 'competitiveness'. The individual items and influencing factors are given in Table 3.6.

Table 3.6 Consensus for the statements concerning influencing factors. Items marked with an asterisk saw consensus reached only in the second round.*

Consensus on factors that influence how safety is valued in organizations		**Direction of consensus**
Developments in national and international society	Growing societal attention for safety	+
	Growing societal unacceptance of risks	+
	Growing attention for disasters in the press	+
	Growing importance of Corporate Social Responsibility	+
	Growing importance of business ethics	+
External factors	Governmental inspections	+
	Media attention to accidents	+
	Economic crisis	-
	Communication with external stakeholders	+
	Legal Requirements	+
	Best practices of other companies	+
	Requirements from important customers	+
	Requirements from (social or private) insurers	+
Organizational factors	The experience of a serious accident	+
	Activities of workers or their unions to improve safety	+
	The adoption of "vision zero" (striving for zero accidents and/or harm)	+
Business values	Transparency (openness)	+
	Trust	+
	Justice	+
	Productivity	+
	Innovation	+
	Responsibility	+
	Sustainability	+
	Operational excellence	+
	Integrity	+
	Commitment	+
	Health	+
	Well being	+
	Competitiveness*	+
Personal initiatives	Initiatives from the CEO	+
	Individual (higher) managers performing exemplary behavior	+
	Initiatives from safety engineers/professionals	+
	Initiatives from employees	+
	Initiatives from family members	+

Concerning the factors that influence how safety is valued in organizations, for the following five statements no consensus was achieved in either of the rounds:

- An ageing working population
- Scarcity of qualified personnel
- Cost saving programmes
- Changes in corporate management
- Diversity

There is no consensus on the influence of diversity and an ageing working population on safety as a value. According to the Delphi panelists, both tend to have a positive influence on safety as a value. There is no consensus on the influence of 'Changes in corporate management'; a more in-depth look into the data shows that 59% of the respondents agreed that there is a neutral (0) influence of management changes on safety as a value. Also there is non-consensus on the influence of Cost Saving programmes and Scarcity of Qualified Personnel. Both were regarded as more negative than positive in their influence by the respondents.

3.5.4 Visibility in practice

Twenty-four items addressed describing visibility, meaning mechanisms for having safety as an organizational value become recognized in practice was addressed: in culture and behaviour, in management actions, and in the organization. Consensus was achieved for 21 of them; one of them after the second round (see Table 3.7). There were three items with no consensus in either of the rounds (see Table 3.8).

Table 3.7 Consensus items concerning visibility of safety values. The item marked with an asterisk only saw consensus in the second round.*

In culture and behaviour	The working habits reflect safety values
	Safety is regularly discussed informally
	There is shared understanding of safety issues
	It is preferred to choose safe ways of working in every situation
	Work is always done safely (or else production is stopped)
	Even if safe work is considered more difficult or time consuming, it is the preferred way of working
	Safety is always being discussed in work meetings*Pro: I see safety and reliability as tightly coupled in the production process
	Contra: In some cases, safety is not necessarily helpful to use resources.
In management actions	High appreciation for safety can be recognized in the top management's agenda
	Managers promote safety actively
	Safety aspects are explicitly taken into account in all decisions
	Managers and supervisors talk about safety issues with employees
	Managers and supervisors show exemplary behaviour by acting safely
In the organization	The value of safety is visible in an excellent safety culture
	Safety is part of the organization's training
	Safety is considered in guidelines and procedures
	Safety gets priority over productivity
	The focus is more on preventive maintenance than on corrective maintenance
	Safety extends to contractors management
	Safety is considered when evaluating new business opportunities
	Safety is considered when introducing new technologies
	Safety is an important topic in corporate communication

Table 3.8 Items with no consensus concerning the visibility of safety values.

In culture and behaviour	Safe behaviour is just as important in private life as in the job
	Safety issues are also communicated with partners/family members
In the organization	In organization Safety is part of the rewarding systems

3.5.5 Ethical justifications

We stated six items related to the ethical justification of safety as an organizational value. In the first round, six items were included; for three of them consensus was achieved, for the other three this was not the case. In the second round, the three items for which no consensus was achieved were included. In round 2, these non-consensus factors were confirmed.

The items concerning ethical justifications on which consensus was reached in the first round are presented in Table 3.9. The results show that the first two statements have been confirmed strongly as consensus items (> 80% strongly agree). The third statement is almost fully agreed on, although less strongly. There were three items concerning ethical justifications that did not lead to consensus in both rounds (see Table 3.10).

Table 3.9 Items with consensus concerning ethical justifications of safety values.

Occupational safety is a fundamental human right
Every employee has the right to return home safely after work
Safety is important in order to reduce human suffering

Table 3.10 Items with no consensus concerning ethical justifications of safety values.

All serious accidents can be prevented
All minor accidents can be prevented
The only justified goal for safety policy is zero accidents

Many respondents responded that all serious accidents can be prevented, but not enough to meet our criteria for consensus. There was less agreement on the statement that all minor incidents can be prevented. Also many respondents agree that zero accidents is the only justified goal for safety, but again not enough for consensus. This could be caused by the strong formulation (i.e. “the only justified goal”).

3.6 Discussion

The aim of this Delphi study was to find consensus on safety values and their impact on an organization's functions, and at the same time to verify whether the outcomes of the interviews are shared by a broad range of stakeholders from industry, government, inspection and insurance companies.

Through the Delphi study, we were able to develop a consensus on what it means when safety is an organizational value, together with consensus on what the potential benefits of safety as a value are, what factors it is influenced by and how to recognize it in practice.

3.6.1 Safety as an organizational value

The result of our Delphi study is consensus among the experts/stakeholders participating in the study about what it means when safety is an organizational value (or perhaps core value). This gives also clarity in what it means when the IAEA (for nuclear power plants) or the European Commission (for offshore installations in the oil and gas industry) require that these industries have safety as a core value: what are the values that need to be dealt with, and how can they be influenced?

Key Issue

Based on the Delphi study, we conclude that when safety is an organizational value, this means that safety is regarded as a positive value in itself, that it is integrated into the business strategy as well as in all business operations; it generates a work culture that is positive for safety, and it implies a long-term commitment. It also implies some guarantees that safety will be important in the future, e.g. it ensures that future managers will be committed to safety.

However, it seems the respondents consider an organizational value primarily as an internal issue, since there was no consensus on having safety as an organizational value meaning taking responsibility for safety of the local community.

3.6.2 Value that safety has for organizations

When exploring the value safety has for organizations, it can be concluded that safety has a value for organizations, apart from the meaning of safety as an organizational value in itself. This added value is certainly economic in nature (good business, corporate image, the continuity of the organization, appreciated by customers, helping to avoid economic loss). The consensus items in this section show that safety has many

organizational qualities. It contributes to good business and better control over production processes, to better relationships between the employer and the employees, to the attractiveness of the organization on the labour market, it is often appreciated by customers and helps in the marketing of products, it contributes to environmental protection, etc. It seems to imply that good safety management is actually an important aspect of good management.

The non-consensus items seem to represent values that safety can have (better use of industrial assets, being key to delivering industrial services, lower insurance costs), but that are clearly context dependent. The specific context of certain branches or company cultures can make a difference. While for contractors doing maintenance work in high hazard industries like the chemical industry, safety is a key to delivering industrial services, this may be a low priority issue when they do maintenance work for a company/ industries with less inherent risks (a contract in financial services for an IT company).

3.6.3 Influencing factors

In the Delphi study, three levels of context factors influencing safety as a value were identified: 1) societal (developments in national and international society, external factors), 2) organizational (organizational factors, business values), and 3) individual level (personal initiatives).

The factors at a societal level, as addressed in this part of the Delphi study, include external factors that are dominantly stemming from society at large and from national and international developments in the relationships between businesses and society. This implies that these factors form the context wherein individual organizations operate. According to our panel, these factors have an influence on safety as a value which is positive, except one: the economic crisis. Apparently safety has the tendency to descend on the priority list when 'day-to-day survival' comes up. This finding is compatible with the well-known "drift to danger" concept, introduced by (Rasmussen 1997), which implies that continuous cost reduction efforts may easily undermine safety margins. Less clear, the external influence of Scarcity of qualified personnel shows a slightly negative influence, although consensus has not been reached. This could be an indication that sudden economic growth on the other hand can also be a critical issue for safety as a value, and that a fit of competent labour resources is very important for safety. Also, no consensus has been found on the role of an ageing working population on safety as a value. In both cases, there were more Delphi panelists who saw a positive influence than a negative one.

Non-consensus may be due to different compensation systems in the participants' countries. Thus, we cannot exclude the idea that safety contributes to these values. Factors on a societal level (developments in national and international society, exter-

nal factors) form the context for organizations on how to deal with safety. Most of these factors are seen as positive influencing factors for safety, except for the economic crisis, which is seen as a negative influencer.

The factors at the organizational level (organizational factors, e.g. the occurrence of accidents, and business values like trust) are factors that in most cases can be changed within the organizations themselves. Most of the factors on the organizational level, like the occurrence of accidents, are agreed to be positive for safety as a value. These factors can mostly be controlled by the organization itself. No consensus has been achieved on the influence of Cost saving programmes, but most panelists saw a negative tendency here. Hence, costs saving programmes probably have a high priority during crises, and so are a threat for safety as a value. Also no consensus has been found on the influence of "Changes in corporate management". The Delphi study shows that more than half of the respondents say there is a neutral (0) influence of management changes on safety as a value. However, this could be because the direction of this influence is very dependent on the manager. The business values that were found to have positive influence on safety as a value, more or less, correspond with the more concrete 'added-values of safety as a value' that were identified and discussed in the former section.

The last sub category concerns the individual level, e.g. the 'personal initiatives' that influence safety as a value. Our Delphi study underlines that all internal stakeholders (CEO, higher managers, Safety engineers/professionals, and employees) as well as family members can have a positive influence. For CEOs and higher managers this more or less reflects the literature on the importance of safety leadership, those of employees the literature on participation.

3.6.4 Visibility

Concerning the visibility of safety as a value, the results show that safety as a value is expressed by informal talking and communication about safety. The results also show that the state of unsafety has its boundaries, and action is taken when these boundaries are passed, even if this requires additional time and effort. Safety as a value is also reflected by management communication, setting of priorities and role behaviour in safety. It becomes also visible by integrating it in operational processes, like maintenance, training, procedures, interaction with contractors, investment choices and priority setting. The results also show that safety at home and safety in the workplace are not related to safety as a value in a straightforward way.

The importance that is given to safety in the workplace in relation to safety at home differs and may be very personal. There was no consensus that safety as a value is vis-

ible in the reward systems. This can have various reasons, e.g. safety results may not be formally included in a reward system, but more informally communicated as positive feedback. This is dependent on the formal policies of the company or branch.

3.6.5 Ethical justification of safety as a value

This Delphi study shows very strongly that a safe workplace is a fundamental right and that it is broadly accepted that every employee has the right to return home safely after work. Also safety was considered as an important factor in reducing human suffering.

There is no consensus on the three statements referring to 'zero accidents'. This is clearly an area where safety experts do disagree: more people agree that all serious accidents can be prevented than that all minor incidents can be prevented. Also many respondents agree that zero accidents is the only justified goal for safety. However, there were not enough agreements for consensus. This could be caused by the strong formulation (i.e. the only justified goal).

The disagreement could also be partly explained by the distinction that can be made between 'vision zero', expressing the ambition to prevent all (serious) accidents, if not now than in the longer term, and safety as an accountable target (Zwetsloot et al. 2013a). Others may associate 'zero accidents' with an 'accountable zero accident goal', (Zwetsloot et al. 2013a) which can easily lead to false safety. Again, it is important to keep in mind that no consensus means that expert opinions vary, which seems to suggest that further research is needed, and perhaps further conceptual clarifications are required.

3.7 Conclusion

In this study, we wanted to develop a consensus on how safety as a value is defined by a variety of key stakeholders; CEOs/managers, employee representatives, safety experts, representatives of authorities and of private or social insurance, and researchers. We also wanted to identify practical dilemmas and bottlenecks when aiming to have safety as a value, as well as to find suggestions as to how organizations can deal with the dilemmas and promote safety as a value among the management and employees.

Nowadays, value based management commitment and an economic perspective are seen to have a crucial importance for safety performance. More and more attention is paid to the value of safety, what it means for organizations and what kind of consequences it has on organizations, to its employees, performance, reputation and financial success. However, as values are abstract basic concepts, our aim was to find out how safety values are defined and used in practice by the key operators, especially higher managers, and how they affect employers' and employees' decisions and behaviour at the workplace.

The main objective in this study was to develop a common understanding of how safety as a value is defined by a variety of key stakeholders: CEOs/managers, employee representatives, safety experts, representatives of authorities and of private or social insurance and researchers. Our literature review showed no common definition of what is meant by safety values, value of safety, or safety as a value itself yet exists. We identified at least four different uses for 'safety and value' in our literature review:

1. 'Value of safety' as a monetary worth of safety
2. 'Value of safety' as the importance or worth of safety, priority of safety
3. 'Safety values' mostly the same as 'value of safety', but focusing more on the expressions of valuing safety (e.g. Newnam et al. 2012)
4. 'Safety as a value' as a core value or implicit value (e.g. Cooper 2001)

Based on our research, we propose the following definition for having safety as an organizational value:

> *A long-term commitment in having safety integrated as a positive value within all business operations and strategies.*

This definition holds three critical elements. First of all, the definition speaks of integration of safety within all business operations and strategies. That is to say that safety is taken into consideration and considered an important value within each step or process the organization undertakes. Secondly, safety is defined as a positive value. This means that safety should not be considered a hindrance to production, but instead a worthwhile value to be achieved alongside the optimization of production. Thirdly and lastly, the definition refers to a long-term commitment. This is to distinguish between organizations with temporary safety programmes and organizations that are truly committed to implementing safety in their business operations.

When safety is truly shared as an organizational value, it is clearly part of "the way we do things around here", whether these 'things' refer to strategies (management and organization), investments (new technologies or new activities) or personnel development. Hence, the existence of a safety culture is an outcome of broad managerial organizational processes, touched by the company's strategy, mission, and practical operational decisions. As such, safety as a value should be visible in behaviour, management communication, and operational processes.

When safety is genuinely an organizational value, this implies that in the organization, there is a shared intrinsic motivation to strengthen safety. As a consequence, it will not be easily influenced by external pressure, other organizational priorities, or specific contexts. This also means that it has a certain meaning for the future. Values

that are internalized in people's minds and organizational cultures will not change easily and quickly. It is, of course, important to keep in mind that a value may be only "espoused" instead of genuinely adopted. Therefore, an important element of having safety as an organizational value is that safety should always be considered seriously in all decisions and activities.

An important challenge was identified in economic crises. Apparently safety has the tendency to descend on the priority list when 'day-to-day survival' comes up. This finding is compatible with the well-known "drift to danger" concept, introduced by (Rasmussen 1997), which implies that continuous cost reduction efforts may easily undermine safety margins.

However, when an organization successfully implements safety as a value, our findings show that this contributes to other highly valued areas within the organization. It contributes to good business and better control over production processes, to better relationships between the employer and the employees, to the attractiveness of the organization in the labour market, it is often appreciated by customers and help in the marketing of products, contributes to environmental protection, etc. It seems to imply that good safety management is actually an important aspect of good management.

4 DISCUSSION

In addition to developing a common understanding of how safety as a value is defined by a variety of key stakeholders – CEOs/managers, employee representatives, safety experts, representatives of authorities and of private or social insurance, and researchers – we wanted to identify practical dilemmas and bottlenecks in practicing safety values, and how organizations can effectively deal with these dilemmas. Here we will discuss some of these issues as they were obtained from the results.

4.1 Understanding safety as an organizational value and its value to organizations

In organizations, safety is commonly defined as a part of the organizational values. However, the CEOs/managers interviewed in this study showed that safety was not always mentioned as a core value of the organization, since it was seen so much embedded in the core business (demonstrated in the mission statement) that it was not regarded necessary to also include safety explicitly in the company's core values.

Among CEOs/managers in our study, safety is seen as a priority, more important than productivity or anything else; a quality of work/product (sign of expertise, efficiency of production); an investment for employees and the future of the company; a goal, but also as an objective: a part of one's everyday work. Nevertheless, many CEOs can only say that safety is priority in their company but cannot give a detailed analysis. They continued speaking about the place of safety in meetings of top-level managers, safety speeches, walk-around checks etc., which are usually thought to be included in safety management. However, the sample of CEOs/managers focused on safety-oriented companies and therefore these results cannot be generalized to all companies.

The experts in the Delphi study regard safety as an organizational value almost only relevant for safety in the organization (occupational and process safety), while there was no consensus about taking responsibility for the local community. This is remarkable, because "the impact of values does not stop at the fence of a production plant or workplace. Values have an impact in decision-making, acting and on the behaviour of the managers and workers that have internalized them. Indeed, in the long run, companies cannot be socially responsible externally without being socially responsible internally – and vice versa" (Zwetsloot et al. 2013b, based on Zwetsloot and Starren 2004; Snowden 2005).

It can be concluded that safety can be an important aspect of the organizational values, especially when it refers to its future impact: a company's long-term ambition to improve safety, – a long-term commitment to safety – and future managers that are

committed to safety. Safety as an organizational value has two complementary and compatible dimensions: safety as a value in itself (intrinsically motivated) and safety as a value as a factor that contributes to other highly valued areas such as good business (extrinsically motivated). Both can be motivating for safety and will lead to a commitment to safety improvement. The two types of safety values are likely to strengthen each other (synergies).

The importance of safety was also partly based on the demands of the authorities or customer and the surrounding society: Legislation and instructions of authorities, information requirements (e.g. audit, accidents reports) of customers, reputation among customers and in the society. These reasons were, however, mentioned as secondary motivations for safety. As one CEO said: "Neither the legislation nor the customers set pressure; the company is ahead of them." It is the companies themselves that have the responsibility for safety. Taking care of company reputation was seen as one of the factors which motivates companies to do their best in safety.

Based on the literature review done in our study, organizational values have a more strategic impact than priorities; thus, 'safety as a value' goes beyond 'safety as a priority'. As values are more stable over time, they can also be expected to have implications in organizations for a longer period, as priorities may easily change. Therefore, the value safety has for organizations can only partly be expressed in monetary terms, because issues like "trust, better industrial relations, or avoiding painful conversations with relatives of victims" cannot be expressed adequately in monetary terms. In other words, safety is an important aspect of corporate social responsibility, since it has added value for all 3 P's: Profit, People and Planet. In practice, good safety was seen as a sign of a good business, good management, a responsible and respected employer, and engaged employees.

Safety as a part of the organizational values, especially when it refers to its future impact, can also be seen as an implication that the company and its managers have a long-term ambition to improve safety – a long-term commitment to safety. The literature review showed that safety values are closely related to organizational culture. However, safety culture is a broader concept (also with many definitions), which, in addition to values, includes norms, beliefs, practices and principles that can be related to safety. The Delphi study showed that safety as a value appears to be synergetic with the mentioned business values, such as transparency, trust, justice, innovation, responsibility, and, as also agreed in the second round, 'competetiveness'.

The existence of a safety culture is an outcome of broad managerial organizational processes, touched by the company's strategy, mission, and practical operational decisions.

Safety as an organizational value has two complementary and compatible dimensions:

- safety as a value in itself (intrinsically motivated)
- safety as a value as a factor that contributes to other highly valued areas such as good business and profit, people and planet (added-values; extrinsically motivated).

These two dimensions of 'safety as a value' are clearly complementary, and it seems likely that there will be synergy between these two types of safety value. It is very likely that companies that have adopted safety as an organizational value will also recognize its contributions to other highly valued areas. On the other hand, for companies that have not adopted safety as their (core) organizational value, the contributions to other highly valued areas, such as its contributions to good business, business continuity and customer satisfaction can still be very motivating to commit the organization to safety improvement. In this respect, there is a clear relationship with the notions of intrinsic and extrinsic motivation. These types of motivation are complementary and compatible. In practical situations, the distinction may be somewhat artificial: in many organizations there will be people who dominantly see safety as a value in itself, and other people who mainly see safety as a factor that contributes to other highly valued areas such as 'good business'. In both cases, organizations and the people therein may recognize that safety is important and commit themselves to safety improvement.

Based on the Delphi survey, safety as an organizational value includes the idea that safety is part of personnel's professional skills. When safety is an organizational value, it is regarded in everyday business operations and safety also requires long-term commitment. When safety is an organizational value, it was seen as part of an organizations' existing operations, not as a separate function.

The Delphi survey also showed that the business meaning of safety was seen to be important when safety is an organizational value, i.e. good safety reflects better relations both in the organization and outside of the organization.

The signs that safety is seen as a value correspond with the characteristics of what safety as a value is and has. Safety as a value becomes visible also when it is (explicitly or not) well integrated in operational processes, like maintenance, training, procedures, the agenda of work meetings the interaction with contractors and investment choices.

4.2 Individual differences in perception of safety

In the interviews, the safety attitudes were seen to be individual-based issues, not related to, for example, gender. The differences were seen between individuals in every group. However, views related to the role of age differed. Some CEOs/managers said

that older employees don't have so good safety values and culture as younger employees; some saw older employees as opinion leaders. Some said that young employees might face more accidents, due to lack of skills and lack of understanding of risks, and some said that young employees used personal protective equipment more often than older ones. However, there are research findings which indicate that older workers had the best perceptions of safety (Gyekye and Salminen 2009a).

Some of the interviewed CEOs/managers saw differences in values and safety culture between different locations. As Schein 2014 has pointed out, how people view safety and how cultural factors impact safety issues are influenced by national cultures and, even more importantly, by occupational cultures. In every organization there are subcultures, which have their own subsets of assumption on safety. These subcultures have their roots and origins in the occupations and professions, not merely inside the organization. There are also cultural variations of the occupations in different industries.

The challenges in successfully sharing the safety values of the company in everyday work inside the company were related to:

- employees' attitudes towards safety, complying with regulations and standards
- the dilemma of the costs of best safety available and the financial situation/decision

It seems that the main problems arise when risk is not recognized; that is why employees continue to work in unsafe ways or situations. To tackle the employees' attitudes towards safety, different approaches were used. For example:

- motivating the less motivated people was seen as the duty of managers/supervisors
- use of fast and flexible work habits in the tasks in which safety is required
- paying attention to planning and scheduling, not accepting haste as an excuse
- "competing" on safety

The challenges related to the surrounding society were:

- (Sub)contractors' safety values or quality standards: e.g. in the common workplace, where the habits of different companies do not match
- Country culture: e.g. attitudes towards safety, education
- Global situation: e.g. conflict areas (general safety level in a country)
- The EU directives on governmental tendering: e.g. suppliers are competing on price only, and that safety qualities of products and services are not considered

To tackle the inconsistency of a company's own safety values and requirements and the values and requirements of a (sub)contractor, some companies offer safety training to their contractors or require, for example, a general occupational safety card.

4.3 Ways, challenges and solutions in practicing safety as a value

When safety is truly shared as an organizational value, it is clearly part of 'the way we do things around here', whether these 'things' refer to strategies (management and organization), investments (new technologies or new activities) or personnel development. Safety as a value is understood through/by means of safety management.

Based on our findings, one can say that an organization that has safety as a core value can be recognized by: informal talking and communication about safety, accepting boundaries related to safety (and especially unsafety), and initiation of action in the case that these boundaries tend to be overruled, even if this takes extra time and effort. In these kinds of organizations, management communicates actively that safety is a value, which is reflected in e.g. setting of priorities, integrating it in all operational processes and decisions, and by showing proper role behaviour regarding safety. Safety as a value becomes also visible when it is (explicitly or not) well integrated in operational processes, like maintenance, training, procedures, the agenda of work meetings, the interaction with contractors and investment choices.

It is clear that top managers and supervisors can strengthen safety values by consistent actions.

The CEO/manager interviews showed that the most common ways to share the value of safety in the workplace are

- communication (regular meetings, different kinds of information material, joint discussions)
- training
- continuous development of practices and products

Less commonly mentioned ways were, for example, the use of safety bonuses. Also the Delphi study raised the unclear role of reward/compensation systems: there was no consensus if safety as a value is reflected – or is not – in the compensation systems which show the complexity of having safety as a part of a compensation system. The reasons for this can be various. For example, the compensation of safety doesn't need to be formally included in a compensation system; maybe informal rewards can be very effective, too. On the other hand, safety as part of a compensation system may be a great motivator but the complexity also arises when considering the indicators of safety. Moreover, this is dependent on the formal policies of the company or branch. Anyway, the compensation of safety divides opinions.

The Delphi survey reveals that, when safety is considered to be an organizational val-

ue, it means that safety can be seen in practical everyday operations. Thus, safety as an organizational value reflects safety culture and safety behaviour at work – on all organization levels. This finding shows us that safety as a value is not only an abstract concept.

It is important to distinguish between values that are really shared and lived-up to, and espoused values, which are mainly communicated verbally and in writing. When there is a difference between the two, employees will not believe the espoused values. Employees look at safety values in more practical way than managers and often do not share the same safety values as managers. This is understandable because employees face the everyday concrete safety issues while working; meanwhile managers have a wider overlook across the entire organization.

Both the literature review and the interviews done in the study show that sharing the value of safety with everyone in the workplace is not easy. According to the interviews, the challenges inside the company were related to:

- employees' attitudes towards safety, complying with the regulations and norms
- the dilemma of the costs of best safety available and the financial situation/decision

This challenge of national/occupational/company based culture was identified in the CEO/manager interviews, as they recognized that the surrounding society, that is (sub)contractors' safety values or quality standards (e.g. in the common workplace, where the habits of different companies do not match) or country culture (e.g. attitudes towards safety, education) affect how safety values are viewed and put into action. To tackle the inconsistency of a company's own safety values and requirements and the values and requirements of a (sub)contractor, some companies offer safety training to their contractors or require, for example, a general occupational safety card. This organization's effort to influence value of safety outside the company can be seen as an act related to corporate social responsibility. The company is seen to be responsible for taking care of human well-being (both their health and safety), families of employees and society.

From a practical point of view it seems that the main dilemmas/problems for organizations is that risk is not recognized and that's why employees continue to work in unsafe ways or situations. To tackle the employees' attitudes towards safety, different approaches were used.

The CEOs/managers mentioned for example:

- motivating the less motivated people was seen as the duty of managers/supervisors
- use of fast and flexible work habits in the tasks in which safety is required

- paying attention to planning and scheduling, not accepting haste as an excuse
- "competing" on safety

The dilemma of the costs of best safety available and the financial situation/decision is also recognized widely, both in research literature and in practice. Line managers have to manage the dual goals of productivity/efficiency and safety. If a productivity schema is more salient and important in the thinking of individual managers, they may over-emphasize productivity and under-emphasize safety (Colley and Neal 2012).

The interviewed CEOs/managers for example recognized that the high ambitions on professionalism and craftsmanship sometimes leads to frustration, e.g. in case of disappointments when things don't work out because of planning/money issues. This can be a trigger for unsafe acts. Also the need to innovate and finding new ways of working can be exciting and unsafe at the same time. Finding the right balance in these issues was seen as a challenge.

From the researchers' point of view, the companies involved in the study were in a different stage in their safety, and in building their safety culture. As one company was building its safe working environment – "the basic things" – some others were modifying their safety culture towards individual involvement: "safety as everyone's core attitude". This difference was shown in what the companies did to share the value of safety among their managers and employees. For example, how the values of the company were formed and discussed with employees: were they given or formulated together with employees?

Sharing and managing values and integrating organizational and individual values are real challenges (e.g. Paarlberg and Perry 2007). Some mechanisms have been found that strengthen safety values. For example, supervisor safety practices are associated with stronger safety values (Newnam et al. 2012). Colley and Neal (2012) presented that bottlenecks in transferring and reinforcing the safety message may occur because of the communication styles and differing values of supervisors. Paarlberg and Perry (2007) described that the process of aligning values should be a social process between employees, managers, and even customers and other stakeholders. Values should not be defined by the top management alone, but with the employees.

Often, managers talk about how safety as a value is shown in practice. They are not talking about how the values of their organization are defined. It seems there is no discussion with personnel when setting values; neither is there discussion on what kind of culture or practices are expected based on the values set. When aiming to have safety as a (core) value, organizations could use the knowledge and experiences of mechanisms that help to share and manage values, based on general values re-

search, e.g. defining the values and their practical implications with employees (and other stakeholders); exploiting the middle management as integrators between individual values and organization's practices; resourcing, communicating and rewarding in line with the values defined etc. (e.g. Paarlberg and Perry 2007).

One possible way to solve challenges that are connected to value discussion in working life is to bring virtues as developing tools in organizations. Values and virtues are closely related to each other, but unlike values, virtues have to come true also in practice to be alive (Kylliäinen 2012). Where the values are ideals that are hoped to instruct activities, virtues cannot be talked about until the ideals have come true. Virtues do not replace the values in working life. An organization needs to function both well and right. Values direct the future and instruct the development; all the good things that happen here and now are on the basis of virtues.

There are several safety related values that are important for developing or supporting safety practices and/or safety culture. The most well-known are justice (Dekker 2007; Reason 1997), trust and informedness (Reason 1997). Trust between managers and employees as well as a "just culture" seem to be necessary preconditions for the spread of safety values. Based on the analysis of Zwetsloot et al. (2013b) on core values, there are three types of values that support safety, namely values related to:

1. "being" – that is, to individuals and their attitudes (interconnectedness, participation and trust)
2. "doing" – that is, actions planned or undertaking (justice and responsibility)
3. "becoming" – that is, the alignment of personal and organizational development (growth and resilience)

Priorities often depend on the circumstances. Safety as a priority may change when the organization meets external threats. However, when safety is a shared value, it is part of the identity of the organization to always operate in a safe manner, even under difficult conditions. A comprehensive view of the value of safety could thus help organizations to improve their resilience (Hollnagel et al. 2006), especially when safety is the core value of organization.

When both top management and employees had internalized safety as top priority, they saw unanimously the way out of the crisis which they had met. An organization with consensus about safety values is also stronger to meet external threats.

4.4 Zero accident vision and beyond

As mentioned in the literature review, Cooper (2001) has stated that the idea of 'safety is a value' is based on the "fundamental philosophy that all injuries are prevent-

able and that the goal of zero injuries can be achieved" and a safe working place is nowadays seen as a fundamental right.

Interestingly, concerning the ethical justification of safety as an organizational value, the Delphi study did not show consensus on zero accidents being the only justified goal for safety policy. Respectively, there was no consensus on the ideas that all serious accidents can be prevented or that all minor accidents are preventable.

One possible explanation for non-consensus on having zero accidents as the only justified goal is that zero accident can be understood as a numerical goal rather than a philosophy. Numerical goals for safety divide opinions and this may be the case here. Preventing all serious and all minor accidents may as well have the non-consensus because of the general thinking that someday an accident may occur regardless of all the preventive work. However, the Delphi survey showed that safety values were seen as important both on the moral and operative levels.

When linking safety as a value to zero vision, safety should not only be seen as a number, a target or an outcome of technical competence, it is more and more seen as a crucial value that is a part of, or even defines, a corporate culture.

Another interesting result was that the panelists did not agree whether it is characteristic – when having safety as an organizational value – that organizations take responsibility for the local community, or people communicate about safety issues outside of work. However, some companies are already promoting and sharing value of safety further than just in their organizations or working hours, by e.g. lending safety equipment to employees, supporting and encouraging people to act safely in their free time. We could ask, is the 'zero accidents' goal enough in the future, or is there a need for a more advanced mindset for safety, extending the concept of safety beyond the zero, covering the shared responsibility for safety and aiming to have safety as a value in every walk of life?

4.5 Limitations of the study

The main focus of the literature review was to generate information for defining the content of interviews and the Delphi study. Therefore, we did not perform a systematic review, but more like an exploratory review. The exploratory review might exclude some publications related to the topic; however, it is considered to be adequate for the purpose of this research.

There are some limitations concerning the generalization of the results of the interviews. For the interviews, we purposely selected the interviewees from companies which are already on their way with the "value of safety" discussions, to be able to get information on the dilemmas as well as practices they have had.

The Delphi study has some limitations. The Delphi study is the best option to create consensus, and come-up with a definition of the value of safety as an organizational value, and of the factors relevant for the (added) value of safety. However, concerning the influencing factors, visibility and ethical justifications, other forms of research design would be more suitable than a Delphi study, which is based on expert opinions. However, such studies could not be very fruitful in the absence of consensus of what it means when safety is a value, or what (added) values safety can have for organizations. Now that there is consensus on these two basic issues, further research on influencing factors, expressions of the value of safety, and ethical justifications can be more fruitfully undertaken. The last three perspectives were explored in this Delphi study, in order to generate a first framework, and so a set of hypotheses on what influencing factors, expressions of safety as a value, and ethical justifications are most relevant for further research. In this study, we used two complementary research methods to address this limitation of the Delphi study.

Secondly, although the involvement of the various types of stakeholders is in itself satisfactory, this is much less the case with their geographical origin: Europeans were very dominant. As values, and their interpretations, are influenced by national cultures, we cannot be sure that panel participants from other continents would have generated the same outcomes.

4.6 Recommendations for future research

There are several interesting issues where future research is needed. Since we have a consensus on what it means when safety is an organizational value, it is important to follow up with research concerning the relationship between 'safety as a value' and safety culture, as well as 'safety as a value' and business ethics. Another interesting question that future research might address is exploring what makes some companies adopt safety as a value, while others do not.

In addition, there were some questions we did not get answer to in this study: What is the role of the local community, since there was no consensus about taking responsibility for the local community? Further research has to find out what the issues are related to being responsible and safe externally, since safety, of course, doesn't stop at the fence of the workplace. Also the relationship between safety at home and safety in the workplace could need a closer look, since this was not always valued equally. The question of whether or not safety as a value should or could be reflected in the compensation systems remains open, as well as the ambition of Zero vision as an ethical justification, since this clearly is an area where safety experts do disagree. A first step might be further clarifications on the concept of 'zero accidents'.

PART II - ORGANIZATIONAL VALUES AND VALUING SAFETY AT WORK

Value of Safety research project

Research report of work package WP4

Henriikka Ratilainen[1] (Editor), Virpi Kalakoski[1], Antti Ukkonen[1], Pia Perttula[1], Vuokko Puro[1], Jouko Remes[1]

[1)] Finnish Institute of Occupational Health (Finland)

Published on 2017-01-16 in SAF€RA technical report number 2017-01 https://projects.safera.eu/project/8

5 INTRODUCTION

This study is the second part of the Value of Safety (VALOSA) research project. The first part of this project consisted of a literature review, interviews with CEOs and senior managers, and a Delphi study of several stakeholder groups. The second part of the project consisted of interviews at the supervisor and worker levels, as well as the "Organizational values and valuing safety at work" survey carried out in three Finnish companies.

In the first part of our project, we revealed that there is no unanimous definition of safety as an organizational value. Through the Delphi study, we were able to develop a consensus on what it means when safety is a true organizational value, together with a consensus on what the potential benefits of safety as a value are, what factors influence it, and how it can be recognized in practice.

Based on our literature review, the top managers and supervisors can strengthen safety as a value through consistent actions, and it is important to distinguish between values that are really shared and lived up to, and espoused values, which are mainly communicated verbally and in writing. If there is a conflict between the shared values and espoused values, employees will not believe the espoused values.

The CEOs and top managers from several European forerunner companies whom we interviewed in the first part of the research identified good safety as a sign of good business and management, a responsible and respected employer, and engaged employees. They saw safety as a priority and as quality of work, and also as an investment for workers and the future of the organization. According to the CEOs, safety as a value was shared most commonly through communication: meetings, safety walks, campaigns, etc., as well as through safety training and an open climate for new ideas and reporting accidents and near misses. The CEOs emphasized the role of the behaviour of management and supervisors, which was also identified in the literature review. As the challenges related to sharing safety as a value and safety at work, CEOs and managers mentioned, for example, the employees' attitudes and motivation towards safety, the dilemma between safety and costs, and the need for new innovations when it comes to ways of working.

In the second part of our research, using data gained from the literature review, the CEO interviews, and the Delphi study, we developed the "Organizational values and valuing safety at work" survey. In addition, we carried out interviews with employees and supervisors in order to identify any other aspects related to safety as an organizational value. The aim of our survey was to study 1) how safety is valued in different organizational groups, 2) what kind of value conflicts come up in everyday work,

decision-making and value communication, 3) how organizations promote and share the safety as a value in practice, and 4) what factors in companies and organizations can strengthen safety as a value.

6 INTERVIEWS WITH SUPERVISORS AND EMPLOYEES

6.1 Participants

We carried out ten group interviews in two of the three companies participating the value questionnaire. The group interviews were held in June 2015. Altogether 32 persons participated in the group interviews: 12 supervisors, 12 employees and 8 interviewees from the safety organization.

6.2 Implementation of the group interviews

The interviews were theme interviews with 2-5 interviewees. The aim of the interviews was to provide information 1) to develop the value questionnaire and 2) to better understand and interpret the results from the value questionnaire. The interviews consisted of following themes:

1. Organizational values and their visibility at the workplace
2. The value of safety and exposing it at the workplace
3. Value-related conflicts at work
4. Needs for improvements concerning safety
5. Your own role in safety matters (only for the safety organization)

The interviewer had elaborative questions for each theme. The duration of the interviews varied from one to two hours. The results of the group interviews are described at a general level for reasons of privacy protection.

6.3 Main observations from the group interviews

Both companies had defined their organizational values, with safety being one of the values of both companies. The factors interviewees considered to improve safety included the following:

- open discussion/communication and emphasizing safety matters
- anticipating safety, risk assessments
- continuous training and orientation
- in-work safety management practices (safety observations system, safety walks, safe tools and equipment, etc.)

The factors mentioned by the interviewees as weakening safety included:

- inadequate/over-optimistic planning and scheduling, not updating the schedules after delays due to other quarters

- supervisors hurrying employees
- perceptions of haste; temptation to take a short cut in safety instructions or choose a faster but less safe way of work
- poor design of the work environment, processes or equipment

The ways safety as a value was communicated according to the interviewees included:

- safety information (safety bulletin, safety info emails)
- safety training and other events, safety matters as a part of weekly meetings, etc.
- encouraging employees to report safety-related problems
- rewarding based on safety matters
- Some of the interviewees considered safety to be communicated mostly through events and bulleting, and not so much in everyday work.

With regard to value-related conflicts, the interviewees pointed out the following, for example:

- time pressure/efficiency vs. safety: middle/top managers or customers do not necessarily understand what or how long it takes to perform a certain task safely
- competing safeties, e.g. occupational safety vs. process safety
- planning and developing safety procedures/instructions at work are not participative
- impossible instructions or requirements
- supervisors/managers do not always intervene in unsafe actions or safety deficiencies they have noticed

As regards ways to improve safety, the interviewees suggested the following, for instance:

- better devices for work, safer equipment
- a genuinely responsive and open atmosphere for employees' ideas and suggestions for safety and work
- more participative safety development
- decreasing perceptions of haste.

7 "ORGANIZATIONAL VALUES AND SAFETY AS A VALUE" SURVEY

7.1 Participants

The sample was gathered from three Finnish companies operating in different fields of industry: construction, chemical industry, and paper industry. The survey took place between September and December 2015, depending on the company. The surveys were filled out using the Digium digital survey tool or in paper format. Altogether 2804 individuals were approached in order to participate in the survey. In total, 1362 individuals responded, representing a response rate of 49 %.

Eighty-six percent of the respondents were male and 14% female. Most of the respondents belonged to the age group of 45-54 years (Figure 7.1).

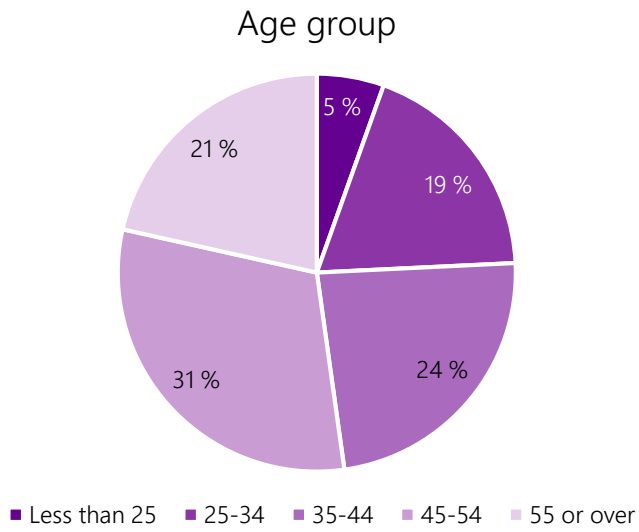

Figure 7.1 Respondents by age group.

Twenty-four percent of the respondents had a supervisory position, while 76% were working in a non-supervisory position. The average age of the respondents was 44 years (SD=12). The personnel groups of respondents are presented in Figure 7.2.

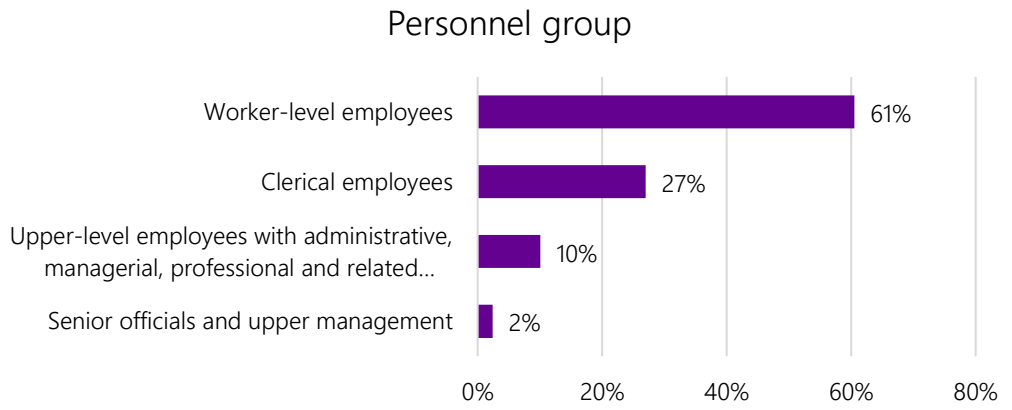

Figure 7.2 Respondents by personnel group.

Most of the respondents had 11-20 years of work experience (Figure 7.3). Only around one out of ten respondents had work experience of two years or less.

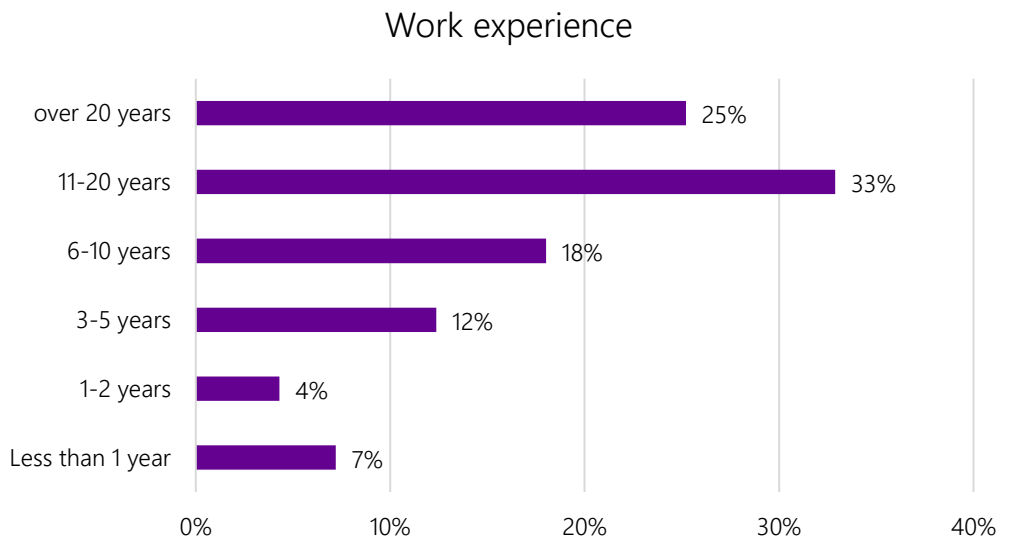

Figure 7.3 Respondents by work experience.

Most of the respondents (90%) had a permanent employment position, while 10% were working with a temporary contract.

7.2 Survey method

7.2.1 The content of the survey

The "Organizational values and valuing safety at work" survey was developed in this study by combining existing survey methods with new items generated for this study. The survey was intentionally compiled to be quite extensive, in order to identify the different aspects related to safety as a value and the value of safety in organizations.

We constructed the survey with ten different sections, covering personal values, work values, and items describing how safety is valued by respondents themselves and how respondents consider their supervisors, managers and co-workers to value safety. We also included items describing ways of sharing and communicating safety as a value, as well as the barriers preventing individuals from acting safely in everyday work. The content of the survey is presented in Table 7.1.

Table 7.1 The content of the "Organizational values and valuing safety at work" survey.

Section	Method and focus
Organizational unit	Respondent's working unit
Background information	Year of birth, sex, personnel group, educational background, supervisory role, work experience, type of employment, Occupational Safety Card
Accidents and near misses	Accidents involving oneself and colleagues/subordinates, reporting near misses, effective ways to prevent accidents
Safety activities at the workplace	Items describing the safety performance and activities in everyday work at the individual, group, management, and organizational levels. 5-point Likert scale, where 1=fully disagree and 5=fully agree.
Valuing safety at the workplace	Items describing the employer's motives for safety and the value of safety, and social responsibility for the safety of the employees, environment and community. 5-point Likert scale, where 1=fully disagree and 5=fully agree.
Safety and risk perceptions at the workplace	Items describing the risk perceptions and motivations for safety. 5-point Likert scale, where 1=fully disagree and 5=fully agree.
Practical safety challenges	Items describing the value conflicts in everyday work, decision-making and value communication. 5-point Likert scale, where 1=fully disagree and 5=fully agree.
Typical working conditions and circumstances at work	Frequency of typical straining work conditions and circumstances. The scale consisted of twelve items from the SUJUVA scales (Kalakoski et al 2012) concerning typical human errors and straining work conditions. 5-point Likert scale: 5=daily, 4=weekly, 3=monthly, 2=yearly, 1=never.
Work-related values	The Work Value Survey (Ros, Schwartz & Surkiss 1999) was used to study the work-related values of the participants. 5-point Likert scale, where 1=not important at all, and 5=very important.
Values in life	21-item version of the Portrait Values Questionnaire (Schwartz & Bilsky, 1987, 1990; Schwartz, Melech, Lehmann, Burgess, & Harris, 2001; Schwartz & Sagiv, 1995; Schwartz, 1992, 1994) with two additional items concerning safety at work. 6-point Likert scale, where 1=Not like me at all, 2=Not like me, 3=A little like me, 4=Somewhat like me, 5=Like me, 6=Very much like me

To study the participants' basic values in life, we used the 21-item version of the Portrait Values Questionnaire (PVQ) (Schwartz & Bilsky, 1987, 1990; Schwartz, Melech, Lehmann, Burgess, & Harris, 2001; Schwartz & Sagiv, 1995; Schwartz, 1992, 1994) with two additional items concerning safety at work. The items added to the original questionnaire were:

- Safety at work is important to him/her. He/she wants his/her employer to ensure that working is safe.
- It is important for him/her to work safely in every situation. He/she tries to avoid safety risks at work.

To measure respondents' values at work, we used the Work Value Survey (WVS) (Ros, Schwartz & Surkiss 1999).

Twelve items were selected from the SUJUVA survey (Kalakoski et al. 2012), describing typical straining work conditions and typical human errors at work.

7.2.2 Statistical methods

Factor analysis with initial extraction rotation was used to determinate sum of the variables, excluding PVQ and WVS. Since the items of the new sections of the questionnaire were not based on a single theory but on several theoretical approaches and findings, there was no single theoretical motivation to find certain subscales. Therefore, exploratory factor analysis was chosen in order to discover a factorial structure that is statistically, theoretically, and practically justifiable. The reliability of the sums was measured by counting Cronbach's α-values. The Pearson correlation coefficient was calculated for the sum of the variables. The association between work injuries and the sum of the variables was analyzed with binary logistic regression. Linear regression analysis was used for continuous variables. All analyses were adjusted for sex, age and education. One-Way ANOVA with Bonferroni ad-hoc tests were used to analyze the differences between different respondent groups.'

7.3 Findings and discussion

7.3.1 Dimensions for valuing safety

Based on the factor analysis, we ended up with 19 subscales. These are presented in Table 7.2. Perceptions of workplace safety values are transmitted across levels of the organization, but on the other hand, different organizational groups have different perspectives on safety as a value, and therefore also tend to have different ways espousing safety as their value. (See e.g. Colley and Neal 2012; Salminen and Koivula 2006.) In our study, we have categorized the subscales based on the organizational level that the subscale mainly describes. For example, "Acting safely is not support-

ed in everyday work" indicates that the prerequisites for valuing safety are not provided by the organization and/or employer (see Table 7.2).

Table 7.2 The subscales of the survey based on the factor analysis.

Factor	Organizational level	Items	Cronbach's α	Theme
Organization values safety in order to avoid negative outcomes	Organization / Employer	3	α=0.854	Motivations for safety (SV1)
Organization values safety in order to pursue positive outcomes	Organization / Employer	4	α=0.872	
Organization has an extensive interest in safety	Organization / Employer	3	α=0.894	
Safety personnel is active	Safety personnel	3	α=0.920	Support for safety performance (SV2)
Safety training is useful	Organization	3	α=0.879	
Acting safely is not supported in everyday work	Organization / Management	5	α=0.799	
Safety deviations are handled actively	Organization / Management	3	α=0.895	
The management's safety communication is open and active	Management	3	α=0.918	Management's actions and priorities regarding safety (SV3)
Safety is not the management's priority	Management	6	α=0.901	
The management participates and involves employees	Management	3	α=0.909	
Supervisors ignoring safety	Supervisors	3	α=0.913	Supervisors' actions and priorities regarding safety (SV4)
Supervisors showing their responsibility	Supervisors	3	α=0.944	
Supervisors showing a good example and encouraging employees in safety matters	Supervisors	5	α=0.908	

Acting safely is valued in the work community	Work group / Organization	2	α=0.936	Valuing safety at the work-group level (SV5)
Employees are acting for the common safety	Work group	3	α=0.862	
Safety is ignored in work-group level	Work group	3	α=0.770	
The value of safety is not recognized by individuals	Individual	6	α=0.805	Valuing safety at the individual level (SV6)
Individuals are committed to work safely	Individual	5	α=0.874	
Concerned about getting in an accident at work	Individual	2	α=0.823	Concerned about getting in an accident at work (SV7)

The internal consistencies (Cronbach's alpha based on standardized items) for most of the subscales (17/19) were at least at a good level (α≥0.8) and for 2 subscales at an acceptable level (0.7≥α>0.8).

7.3.2 Values in life

The Portrait Values Questionnaire was used to measure the personal values of respondents, and it resulted in good internal consistencies (α = 0.756…0.939) for the scale and its subscales. The means and standard deviations of the subscales for the questionnaire are presented in Table 7.3, as well as differences between personnel groups.

Table 7.3 The means and standard deviation of Portrait Values Questionnaire subscales, and differences between personnel groups. The answering scale was: 1: Not important at all ... 5: Very important.

Portrait Values Questionnaire	N	Mean	St. dev.	Cronbach's α	Differences between personnel groups
Security (J5, J15)	1230	4.23	1.066	α=0.845	Senior officials/upper management scored significantly lower than other groups.
Conformity (J7, J17)	1224	3.96	1.059	α=0.859	Worker-level employees scored significantly lower than upper-level employees and clerical employees.
Tradition (J9, J21)	1229	3.62	1.015	α=0.756	No differences between groups.
Benevolence (J13, J19)	1243	4.74	0.892	α=0.892	Worker-level employees scored significantly lower than clerical employees.
Universalism (J3, J8, J20)	1248	4.47	0.933	α=0.849	Worker-level employees scored significantly lower than upper-level employees.
Self-direction (J1, J12)	1239	3.94	0.979	α=0.817	Worker-level employees scored significantly lower than other groups.
Stimulation (J6, J16)	1231	3.54	1.034	α=0.852	No differences between groups.
Hedonism (J10, J22)	1235	3.79	1.132	α=0.919	No differences between groups.
Achievement (J4, J14)	1233	3.20	1.130	α=0.908	Worker-level employees scored significantly lower than other groups.
Power (J2, J18)	1236	2.80	1.014	α=0.846	Worker-level employees scored significantly lower than other groups.
Occupational Safety (J11, J23)	1239	5.05	0.905	α=0.939	Worker-level employees scored significantly lower than upper-level employees and clerical employees.

On average, the most highly scored personal values were occupational safety, which was added to the original scale, and benevolence. The most lowly-scored items were power and hedonism. Interestingly, the worker-level employees scored significantly lower than upper-level and clerical employees on the occupational safety factor, however there was no significant difference between workers and senior officials/upper management concerning the occupational safety factor.

7.3.3 Work-related values

The Work Value Survey was used to measure respondents' work-related values. The survey resulted in good internal consistencies (α= 0.819…0.875). The standard deviations of the subscales are presented in Table 7.4.

Table 7.4 The means and deviations of the Work Value Scale, and differences between personnel groups.

Work Value Survey	N	Mean	St. dev.	Cronbach's α	Differences between personnel groups
Extrinsic work values (I1, I2)	1268	4.40	.658	α=0.875	Worker-level employees valued significantly higher than senior officials/upper management.
Intrinsic work values (I3, I6)	1262	4.06	.713	α=0.819	Worker-level employees valued significantly lower than other groups.
Social work values (I4, I7, I9)	1270	3.70	.780	α=0.850	Worker-level employees valued significantly lower than other groups.
Prestige work values (I5, I8)	1256	3.03	.856	α=0.828	Clerical employees valued significantly lower than upper-level employees.

On average, the extrinsic work values were considered most important and the prestige work values least important. The only work value factor that worker-level employees valued higher than other personnel groups was extrinsic values.

7.3.4 How safety is valued in the organizations

Three subscales described the motivations for safety (Figure 7.4). Around four out of five of the respondents at least partly agreed that their organization values safety in order to pursue positive outcomes (e.g. to improve the organization's competitiveness or image) and has an extensive interest in safety (e.g. promoting safety at the industry level). Seven out of ten respondents at least partly agreed that the motivation for safety is to avoid negative outcomes (e.g. avoiding sanctions or costs).

Figure 7.4 Organization's motivations for safety.

The management's actions and priorities regarding safety were measured using three subscales (Figure 7.5) and almost nine out of ten respondents at least partly agreed that the management's safety communication is open and active (e.g. management openly talks about safety issues). Three out of four respondents at least partly agreed that the management participates and involves employees in safety matters (e.g. management holds safety walk-arounds on a regular basis). Less than one third of the respondents at least partly agreed that safety is not the management's priority (e.g. top management talks about safety but the commitment is not shown in practice, or the rewarding systems are based on financial matters, not on safety).

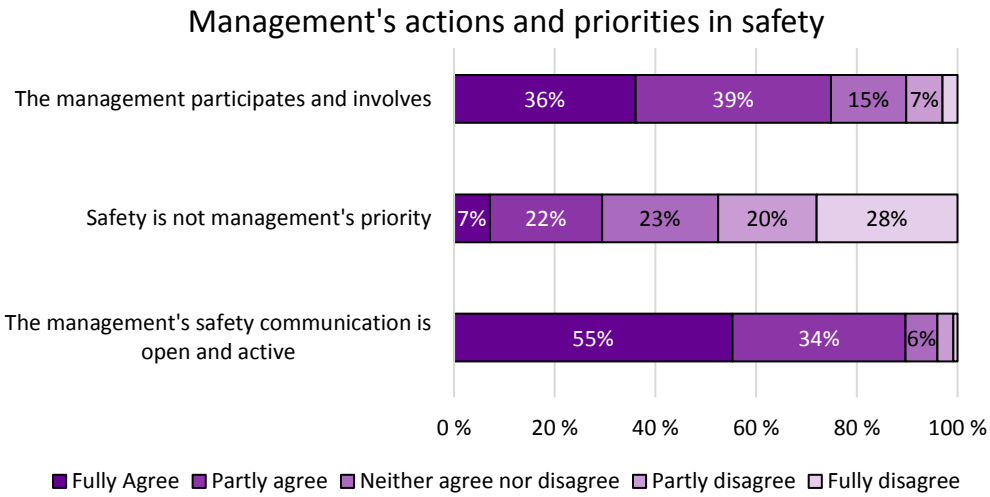

Figure 7.5 Management's actions and priorities in safety.

Three subscales measured supervisors' actions and priorities in safety (Figure 7.6). Around eight out of ten respondents at least partly agreed that supervisors show a good example and encourage employees in safety matters (e.g. encouraging reporting on safety deviations and being exemplary in safety), and that supervisors show their responsibility when it comes to safety. Less than one third of the respondents at least partly agreed that supervisors ignore safety matters (e.g. supervisors agreeing to take risks when the schedule is tight).

Figure 7.6 Supervisors' actions and priorities in safety.

Four subscales measured support for safety performance (Figure 7.7). Around four out of five respondents at least partly agreed that safety deviations are handled actively (e.g. the actions decided on after incidents are always implemented). Around seven out of ten respondents at least partly agreed that safety personnel is active, and that safety training is useful. Around every fourth respondent at least partly agreed that acting safety is not supported in everyday work (e.g. not obtaining suitable tools for safe working or too tight schedules leading to unsafe work).

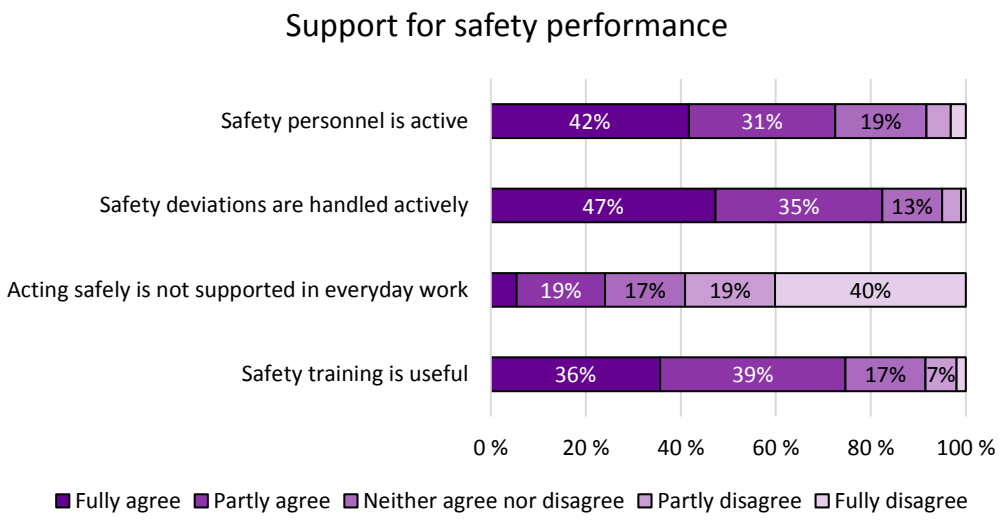

Figure 7.7 Support for safety performance.

Three of the subscales measured how safety is valued at the work-group level (Figure 7.8). Over nine out of ten respondents at least partly agreed that acting safely is valued in the work community (e.g. people working here value a high level of safety performance). Around eight out of ten respondents at least partly agreed that employees are acting for the common safety (e.g. co-workers intervene if someone is working unsafely). Only 2% totally agreed and 12% partly agreed that safety is ignored at the work-group level (e.g. work group sometimes taking a short cut with safety procedures).

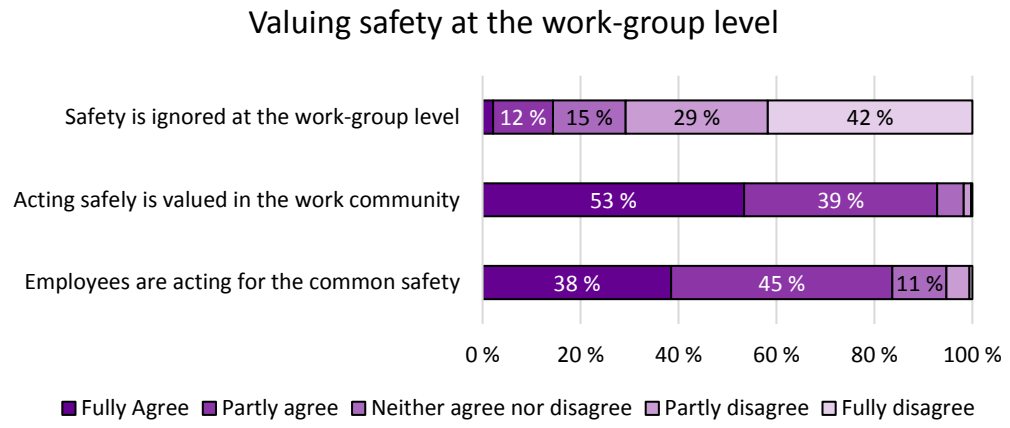

Figure 7.8 Valuing safety at the work-group level.

Our survey had two subscales describing how individuals value safety (Figure 7.9).

More than nine out of ten respondents at least partly agreed that they are committed to working safely (e.g. working safely even when not supervised). Less than one out of ten respondents at least partly agreed that the value of safety is not recognized by individuals (e.g. working safely requires too much effort).

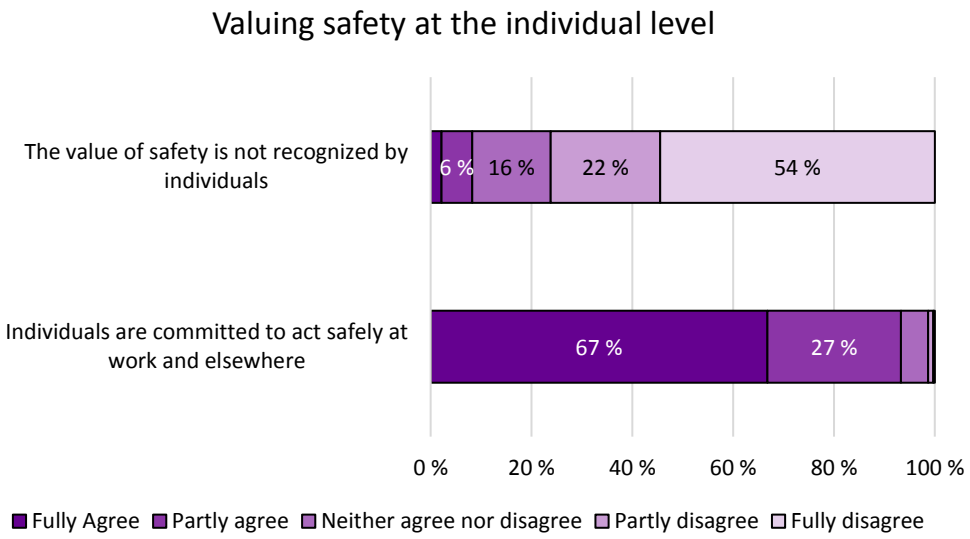

Figure 7.9 Valuing safety at the individual level.

Our analyses showed that there were significant differences (p=0.000-0.009) between supervisors' and non-supervisors' opinions regarding every factor describing how safety is valued in the organization, with non-supervisors being more critical than supervisors. The summary of the analyses is presented in Table 7.5. For example, non-supervisors considered significantly more often that safety is not a priority for management and that supervisors are ignoring safety. However, the non-supervisors were also more critical towards group and individual-level factors.

*Table 7.5 Differences between non-supervisors' and supervisors' views concerning safety as a value in their organization (**higher** scores bolded, reversed scales marked with an asterisk (*); a lower mean is better.).*

	Non-supervisor			**Supervisor**			**Total**			**ANOVA**
	Mean	N	SD	Mean	N	SD	Mean	N	SD	Sig.
The organization has an extensive interest in safety	4.101	922	.8045	**4.420**	295	.6078	4.178	1217	.7734	0.000
The organization values safety in order to pursue positive outcomes	4.233	922	.6953	**4.485**	295	.5478	4.294	1217	.6711	0.000
The organization values safety in order to avoid negative outcomes *	**3.897**	922	.8877	3.649	295	.9640	3,837	1217	.9126	0.000
The management participates and involves employees	3.889	918	.8858	**4.212**	294	.8095	3.968	1212	.8785	0.000
Safety is not the management's priority *	**2.742**	905	.9728	2.243	295	.9222	2.619	1200	.9840	0.000
The management's safety communication is open and active	4.335	922	.7363	**4.593**	296	.5509	4.398	1218	.7043	0.000
Supervisors show a good example and encourage employees in safety matters	4.083	918	.7527	**4.391**	294	.5875	4.158	1212	.7280	0.000
Supervisors ignore safety *	**2.459**	922	1.1298	1.937	295	.9602	2.333	1217	1.1135	0.000
Supervisors show their responsibility	4.154	921	.8433	**4.465**	296	.5970	4.230	1217	.8014	0.000
Safety personnel is active	3.950	919	.9338	**4.238**	295	.7764	4.020	1214	.9062	0.000
Safety deviations are handled actively	4.182	921	.7730	**4.411**	295	.5961	4.237	1216	.7403	0.000
Acting safely is not supported in everyday work *	**2.373**	903	.8350	2.120	295	.7130	2.310	1198	.8137	0.000
Safety training is useful	3.919	920	.8034	**4.236**	295	.6985	3.996	1215	.7907	0.000
Safety is ignored at the work-group level *	**2.069**	908	.7872	1.933	295	.7243	2.035	1203	.7742	0.009
Acting safely is valued in the work community	4.381	917	.6563	**4.599**	294	.5279	4.434	1211	.6342	0.000
Employees are acting for the common safety	4.106	918	.6870	**4.323**	295	.5551	4.159	1213	.6637	0.000
Individuals are committed to working safely	4.555	908	.5219	**4.661**	295	.3990	4.581	1203	.4965	0.001
The value of safety is not recognized by individuals	**1.858**	908	.6804	1.627	295	.5164	1.801	1203	.6515	0.000

In addition, one subscale described how concerned respondents are about getting into an accident at work Figure 7.10 In total, 23% of respondents in non-supervisory positions and 14% of respondents in supervisory positions at least partly agreed that they were concerned about getting into accidents.

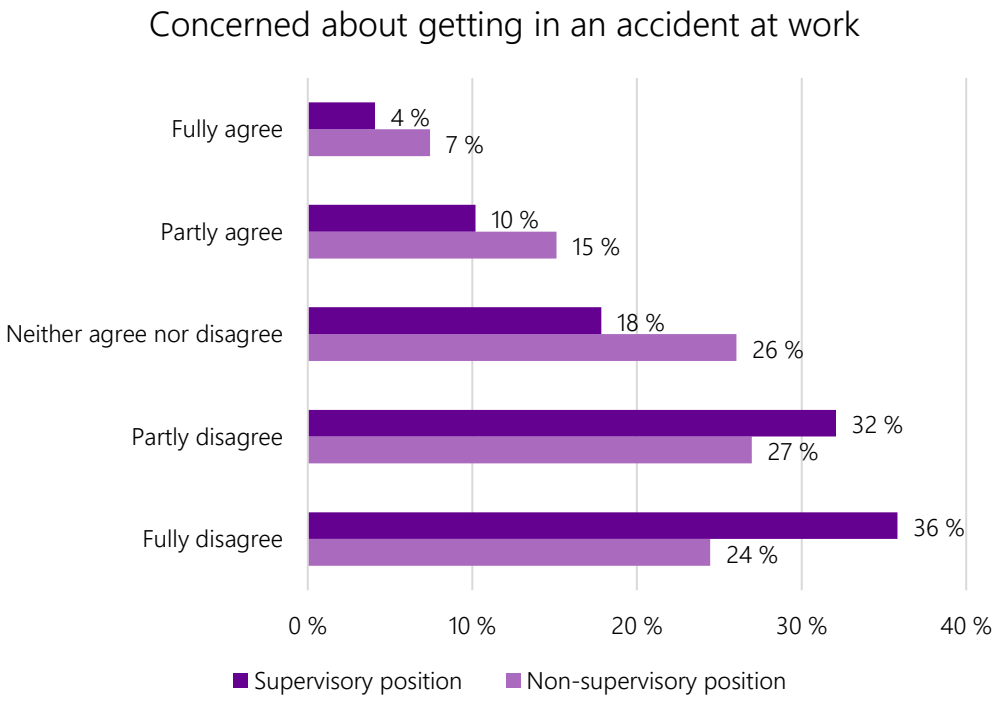

Figure 7.10 Concerned about getting into an accident at work.

7.3.5 Negative safety outcomes

Roughly one out of ten of the respondents have had an accident in the last three years. A total of 28% reported that either their co-worker or subordinate had had a serious accident at some point.

Three subscales were used to measure the human errors occurring at work, and three subscales to measure straining working conditions respondents are facing Figure 7.11 and Figure 7.12.

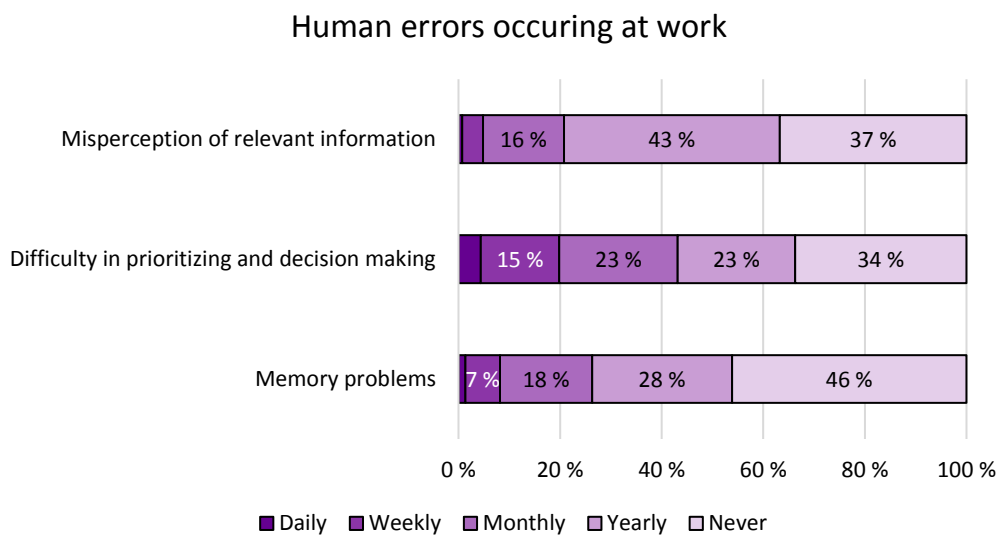

Figure 7.11 Human errors occurring at work.

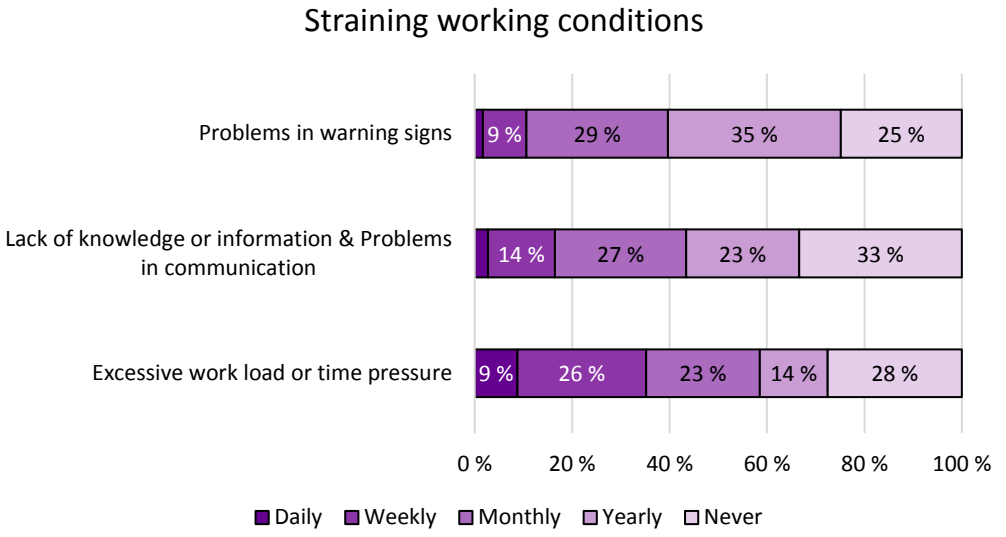

Figure 7.12 Straining work conditions.

The most common human error was difficulties in prioritizing and decision-making, which was faced at least weekly by every fifth respondent. Excessive workload or time pressure was the most common straining work condition, with more than every third of the respondents suffering from it at least weekly. The frequency of human errors and straining working conditions can be considered weak signals for safety problems.

7.4 Value conflicts and practical problems affecting safety in everyday work

In our survey, we studied the possible value conflicts and practical problems concerning valuing safety. We questioned the participants on how much they feel that different factors are in decision-making and everyday work, in order to identify the possibly competing values (Figure 7.13). We discovered that non-supervisors felt that the three most important values (based on the average scores) were 1) productivity, 2) cost efficiency, and 3) occupational safety. Among supervisors, the same three values were at the top, but in a different order: 1) occupational safety, 2) productivity, and 3) cost efficiency.

Figure 7.13 How different factors are valued in decision-making and everyday work; non-supervisors vs. supervisors (5-point Likert scale where 1= very little and 5 = very much).

As regards the items indicating that safety is not supported in everyday work, the most common issues among non-supervisors were that it is sometimes impossible to follow safety instructions, customers/partners do not understand the requirements for safe work, and the schedules set by others lead to safety matters being ignored. The supervisors, too, felt that customers/partners do not understand the requirements for safe work. (Figure 7.14)

Figure 7.14 The average scores concerning items indicating that safety is not supported in everyday work; non-supervisors vs. supervisors (5-point Likert scale where 1 = totally disagree and 5 = totally agree; a lower score is better).

7.5 Ways to improve safety at work

We asked the respondents how effective different means are in order to improve safety at work. Table 7.6 shows the significant differences between supervisors' and non-supervisors' perceptions.

Table 7.6 Ways to improve safety at work

	Very efficient	Rather efficient	Not so efficient	Difference between supervisors and non-supervisors
Improving own attitude	**61%**	**32%**	**7%**	Supervisors consider this more efficient than non-supervisors
supervisors	*79%*	*18%*	*3%*	
non-supervisors	*56%*	*36%*	*8%*	
Improving the safety climate	**52%**	**43%**	**5%**	Supervisors consider this more efficient than non-supervisors
supervisors	*60%*	*39%*	*1%*	
non-supervisors	*49%*	*44%*	*6%*	
Improving introduction/orientation	**50%**	**43%**	**7%**	
Better tools, machines or equipment	**50%**	**42%**	**8%**	Non-supervisors consider this more efficient than supervisors
supervisors	*40%*	*48%*	*11%*	
non-supervisors	*53%*	*40%*	*7%*	
Improving lighting	**48%**	**44%**	**8%**	
Improving ergonomics or usability	**43%**	**51%**	**6%**	Non-supervisors consider this more efficient than supervisors
supervisors	*37%*	*44%*	*8%*	
non-supervisors	*46%*	*53%*	*6%*	
Revising the safe work practices	**42%**	**51%**	**7%**	Non-supervisors consider this more efficient than supervisors
supervisors	*52%*	*44%*	*4%*	
non-supervisors	*39%*	*53%*	*8%*	
Increasing the competence of supervisors	**38%**	**49%**	**13%**	
Decreasing workload	**38%**	**49%**	**13%**	Non-supervisors consider this more efficient than supervisors
supervisors	*28%*	*52%*	*21%*	
non-supervisors	*41%*	*48%*	*11%*	
Increasing safety training	**34%**	**56%**	**10%**	
Developing instructions	**32%**	**58%**	**10%**	
Better work clothing or outfits	**31%**	**49%**	**20%**	Non-supervisors consider this more efficient than supervisors
supervisors	*28%*	*55%*	*23%*	
non-supervisors	*41%*	*48%*	*18%*	
Reducing noise	**28%**	**51%**	**22%**	
Decreasing overwork	**20%**	**43%**	**38%**	Non-supervisors consider this more efficient than supervisors
supervisors	*12%*	*46%*	*43%*	
non-supervisors	*22%*	*42%*	*36%*	
Using checklists	**19%**	**59%**	**22%**	
Improving working shift arrangements	**17%**	**51%**	**32%**	Non-supervisors consider this more efficient than supervisors
supervisors	*9%*	*50%*	*43%*	
non-supervisors	*19%*	*52%*	*36%*	

The supervisors seem to focus on attitude and climate while non-supervisors point out concrete issues such as better tools/machines/equipment or improving ergonomics or usability. In addition, 41% of the non-supervisors considered decreasing the workload a very efficient way to improve safety at work, but among supervisors, the corresponding number was only 28%.

7.6 Experiencing an accident in one's vicinity increases mistrust in safety as a value of the organization

We analyzed the relations between the experience of a serious accident involving a co-worker or subordinate at some point and experienced perceptions of safety as a value in the organization, work-related values, and personal values (Table 7.7)

Table 7.7 Binary regression analysis for relations between an experienced accident in one's vicinity and safety perceptions.

Experience of serious accidents in vicinity and safety perceptions			
Reference category 2 (RR=1)	*RR	95% CI	p-value
Respondents with experience of accident in vicinity: 28%			
Problems in warning signs	1.23	1.12-1.35	p<0.001
Supervisors ignoring safety	1.18	1.10-1.28	p<0.001
Safety is not the management's priority	1.15	1.05-1.27	p=0.004
Misperception of relevant information	1.15	1.04-1.29	p=0.009
Acting safely is not supported in everyday work	1.14	1.03-1.27	p=0.016
Safety is ignored at the work-group level	1.14	1.02-1.28	p=0.021
Achievement	0.91	0.83-0.99	p=0.031
Safety personnel is active	0.91	0.83-1.00	p=0.043
Prestige work values	0.89	0.80-0.99	p=0.038
Supervisors showing their responsibility	0.89	0.81-0.99	p=0.035
The management participates and involves employees)	0.85	0.77-0.94	p<0.001
Supervisors showing a good example and encouraging employees in safety matters	0.85	0.76-0.96	p=0.008
The organization has an extensive interest in safety	0.84	0.76-0.93	p<0.001
The organization values safety in order to pursue positive outcomes	0.81	0.71-0.93	p=0.002
Acting safely is valued in the work community	0.8	0.71-0.90	p<0.001
*)Model adjusted for age, sex and education			

We discovered that people whose co-worker or subordinate has had a serious accident at some point tend to be more critical on issues related to the work environment as well as to the safety values of management, supervisors, safety personnel and employees. For example, they were more likely to feel that supervisors are ignoring safety and that safety is not a priority for the management. They also tend to consider that safety is ignored at the work-group level. Further, they identified more problems with warnings and misperceptions of relevant information. Again, they were less likely to feel that safety personnel were active or to view supervisors as demonstrating responsibility or a good example.

In addition, they were less likely to feel that their organization had an extensive interest in safety or that it valued safety for positive goals. Concerning personal and work-related values, people who had experienced a serious accident involving co-worker/subordinate put less weight on achievements in personal life and prestige work values. This is a logical result, since the accident experienced in their vicinity has probably revealed several deficiencies regarding safety and therefore fed their mistrust in safety as a value of the organization.

7.7 Factors predicting that safety is valued by individuals

In our analysis, we used regression analyses and regression tree analyses to identify the factors predicting that safety is not valued by certain individuals. Using the regression analysis (Table 7.8), it was found that Problems in management's safety communication, Safety not supported in everyday work, Organization valuing safety to avoid negative outcomes, Safety not being management's priority, Problems with warnings, and Usefulness of safety training explain a significant amount of the variance in the value of safety not being recognized by individuals ($F(22.61) = 4.63$, $p < .01$, $R2 = .44$, $R2Adjusted = .42$).

Table 7.8 Regression Tree for Predicting 'The importance of the value of safety is not recognized by individuals'. (5-point Likert scale, where 1=fully disagree and 5=fully agree)

Regression analysis predicting "The importance of the value of safety is not recognized by individuals"	B	SE B	BETA	
Security	.008	.019	.012	
Conformity	-.038	.020	-.062	
Tradition	.044	.019	.067	
Benevolence	-.065	.026	-.084	
Universalism	-.055	.025	-.077	
Self-direction	-.022	.021	-.033	
Stimulation	.006	.019	.009	
Hedonism	-.002	.018	-.003	
Achievement	.022	.020	.039	
Power	.028	.023	.043	
Extrinsic work values	-.075	.029	-.072	
Intrinsic work values	-.041	.031	-.045	
Social work values	-.052	.031	-.061	
Prestige work values	.041	.028	.052	
Excessive workload or time pressure	.002	.019	.003	
Lack of knowledge or information & Problems in communication	.056	.022	.082	
Problems in warning signs	-.118	.022	-.165	a
Management's safety communication is open and active	-.139	.034	-.150	a
Supervisors showing their responsibility	.049	.033	.060	
Safety training is useful	.073	.027	.087	b
Acting safely is not supported in everyday work	.247	.029	.307	a
Safety is not the management's priority	.113	.026	.172	a
Organization values safety to avoid negative outcomes	.051	.019	.071	b
Organization values safety to pursue positive outcomes	-.107	.036	-.108	
Organization has an extensive interest on safety	-.012	.037	-.014	
Safety deviations are handled actively	-.041	.032	-.045	
Supervisors ignoring safety	.029	.021	.049	
Management participates and involves employees	.073	.027	.098	b
Supervisors showing a good example and encouraging employees in safety matters	.017	.041	.019	
Safety personnel is active	-.055	.024	-.077	
Memory	.036	.025	.047	
Difficulty in prioritizing and decision-making	-.012	.022	-.020	
Misperception of relevant information	-.006	.027	-.007	

a: $p<0.001$ b: $p<0.01$

Furthermore, we predicted 'The Importance of valuing safety is not recognized by individuals' using individual items from the PVQ, WVS, SUJUVA scales, as well as SV1-SV4, using regression tree analysis Figure 7.15). The model was least-squares regression tree (pseudo R-squared = 0.24), selected using standard techniques (250-fold cross-validation, 1-SE rule).

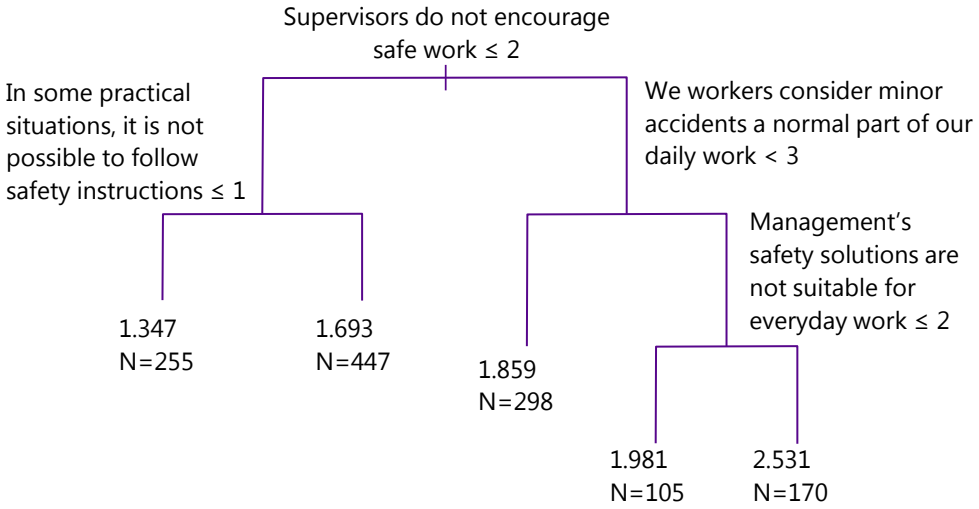

Figure 7.15 Regression Tree for Predicting 'The importance of the value of safety is not recognized by individuals'. (5-point Likert scale, where 1=fully disagree and 5=fully agree)

Based on the regression tree, the most significant items predicting that the importance of valuing safety is not recognized by individuals were:

- Supervisors do not encourage safe work
- We workers consider minor accidents a normal part of our daily work
- The management's safety solutions are not suitable for everyday work
- In some practical situations, it is not possible to follow safety instructions

If the respondent feels that supervisors **do not** encourage safe work, the probability that he or she will ignore safety as a value increases if the respondent has a conception that minor accidents are a normal part of his/her work, and even more so if the respondent also feels that the management's safety solutions are not suitable for everyday work. Even if a respondent feels that supervisors **do** encourage safe work, the risk for the individual not valuing safety increases if the respondent feels that following safety instructions is not possible in some situations.

8 SAFETY AS AN ORGANIZATIONAL VALUE – THE MAIN CHALLENGES AND PROPOSALS FOR SOLUTIONS

8.1 Beyond safety as an employee's value

Values can be described as beliefs regarding what is important and core conceptions of what is desirable or acceptable (e.g. Rokeach 2000; Colley et al. 2013; Meglino and Ravlin 1998). Although safety is often considered a core value, this study showed that the motivation for safety still lies in avoiding negative outcomes, i.e. financial sanctions. Most of the survey participants agreed that they are committed to working safely and that acting safely is valued in their work community. The most highly scored personal value was occupational safety, and there was no significant difference between workers and management. However, at all points, respondents in non-supervisory position gave more negative scores concerning how safety is valued in their organization. When asked about the values in everyday work and decision-making, the top three items in supervisors' minds were occupational safety, productivity, and cost efficiency, but the experiences of non-supervisors were that occupational safety is overtaken by productivity and cost efficiency. The results show that the extrinsic work values were considered most important and the prestige work values least important.

As regards valuing safety, there is a tendency to think – wrongly – that an individual's unsafe behaviour results mostly from his/her bad personal values and attitudes concerning safety. Instead, we need to understand that most of the safety behavior at work results from how people experience that safety is (or is not) valued, communicated, rewarded, directed, demanded and managed in their organization. For example, based on previous value research and safety climate studies, there are several organizational issues affecting how individuals value and prioritize safety in their work:

- The safety climate – referring here to the perceptions of how safety is valued and managed in the organization – affects the safety behavior of people. (Clarke 2006a, b)
- If managers and supervisors are not consistent with their actions and communications concerning priorities, employees cannot be sure what is expected from them. (Colley and Neal 2012)
- If there is a lack of clarity regarding the importance of safety compared to other values (e.g. working safely vs. completing work as fast as possible), or if the organization's reward systems are mostly based on factors other than safety measures, it soon leads to employees valuing other things more than safety. (Meglino and Ravlin 1998)

- Employees' trust and mistrust towards management have been identified as the strongest influence on safety performance. (Conchie and Donald 2006)

Our value survey confirm that employees' values regarding safety are mainly influenced by organizational and managerial factors. This study revealed the importance of safety communication and the role of supervisors in encouraging safe work, and the interviews support these results. The factors are quite practical: how safety and the value thereof are communicated and prioritized by supervisors and management in everyday work, and how working safely is enabled in practical situations. An additional finding is that the value of safety decreases among employees if they feel that employer does not genuinely value the safety of employees and is just trying to avoid sanctions. Meanwhile, employees consider near misses and minor accidents to be part of their work. This may also be seen as a result of organizational and managerial values and priorities regarding safety.

Some of the most essential safety-related problems were safety communication and inapplicable safety instructions. The results also show that the most typical human errors and straining work conditions were difficulties in prioritizing and decision-making, excessive workload or time pressure, which can be considered weak signals for safety problems.

Our results show that when it comes to improving safety, supervisors and managers tend to focus on the safety climate and attitude, while workers focus more on concrete barriers to safety in everyday work. This kind of difference is typical between workers and supervisors, but it can be also a sign that the motivations and backgrounds behind unsafe behaviour are not understood by supervisors. In addition, the non-supervisors considered time pressure and workload issues more problematic than the supervisors.

8.2 How to strengthen safety as a value?

Quite often, organizations ask for tools for improving the safety attitudes of their employees. However, that should be the last step, after ensuring that all the prerequisites are on the rails.

Values the organization wishes to acknowledge can be conveyed through organizational socialization, when leaders themselves set and implement the values of the organization and propagate them to employees (Meglino and Ravlin 1998). This requires that safety as a value be communicated openly, systematically and on a regular basis, and the values must be presented as the only possible interpretation of the situation (Meglino and Ravlin 1998).

The aim should be an organizational state of mind in which working safely is seen as the only possible and acceptable way of working. Strengthening safety as a value requires co-operation on safety issues between management and employees. Based on our study, different managerial practices can be recommended in order to manage and promote safety as an organizational value.

Defining the core values of an organization should start by analyzing the current values directing the operations. Next, the values and value priorities that the organization wishes to implement should be discussed in cooperation with management and employees, in order to improve the mutual understanding and commitment of all the personnel. If employees are asked to work safely, safety should also be one of the core values. The management should make sure it is possible and acceptable, even desired, in every day work. As we have described, a great deal of safety behaviour results from the safety-related experiences employees have at their workplace. It is useful to figure out what perceptions employees and supervisors have regarding safety and its value at work, and to identify the issues preventing people from valuing and prioritizing safety at work.

To communicate safety as a value, one of the most important things is for top management to ensure adequate resources (time, people, equipment, competence) for safe work. The employer should also be rewarding both employees and supervisors for safety as much as for production objectives, in order to emphasize the importance of safety.

There should be several practices in place to increase positive safety communication along with everyday work between the supervisor and employees, as well as between supervisors and management. Even top management should be visible for employees on safety issues on a regular basis, e.g. by visiting work sites and actively asking for and listening to employees' opinions and suggestions.

The top management should ensure that supervisors are trained to communicate safety matters in the right way in everyday work. There is a huge difference between saying to an employee, "you must get this work finished as soon as possible" compared to "even though we are on a tight schedule, there is no need to risk your safety". It is often more about the perceptions and experiences people have regarding the management's safety values, not always just facts.

In a processing industry company, the management has decided to invest on new expensive production line. The most important specifications for the new production line were its safety and usability for the workers, manufacturing efficiency, and easier maintenance. However, when communicating the investment to employees,

the main message was that of the employer making a large investment in manufacturing efficiency, even though the safety issues were the top criteria. As a result, the workers felt that their employer was hardly valuing safety. It was not about the facts but the experience. The management had a good intention but the communication was defective.

The management should make good use of participative safety development where employees act as experts concerning their work, and ask for employees' opinions even then when beginning to plan changes to processes or new machinery investments. Participative practices improve both the quality and applicability of instructions as well as the commitment of the employees, and prevent the problem demonstrated also in our study, when employees felt that following the safety instructions was impossible in some practical situations. In addition, the aspect of human cognitive abilities and limitations should be taken into account when planning work and designing work environments.

Since both supervisors and non-supervisors felt that customers or partners do not understand what safe work requires, and this might be one of the reasons for unnecessarily tight schedules, top management should also communicate regarding these issues with their interest groups.

Middle managers play key roles in interpreting strategic values in terms of employees' values and employees' everyday work responsibilities, as well as communicating and rewarding performance toward those values. The middle managers act as integrators, connecting employees' individual values, derived from their societal, cultural, and religious experiences, with the organization's strategic practices. (Paarlberg and Perry 2007.) It is important for middle managers to ensure that supervisors understand and agree with their subordinates on the value of safety. It is beneficial for middle managers to participate in the safety meetings and discuss safety-related matters directly with the employees. They should also monitor that the appointed safety procedures (e.g. safety observations, toolbox meetings) are being put into practice by supervisors. If there are any inadequacies, the middle manager should step in and ensure that the competence and resources needed for these procedures are available.

Supervisors are the link between the employer and employees, and their actions and talk are everyday communication of the value of safety. Supervisors should show a good example and monitor that employees are following the safety instructions. If any unsafe behavior arises, they should intervene systematically. When intervening, it is important to determine the circumstances and reasons for unsafe behavior, for example by exploiting the rule-breaking analysis from HERA-JANUS (Isaac, Shorrock,

Kennedy, Kirwan, Anderson & Bove, 2003): Was there an intent to break a rule; was the person aware of the rule; were the procedures understood and applicable; was it a common way of working; were there some competing values/goals against safety.

Most people have good intentions to fulfil the expectations they are facing, but often there are practical reasons, value or goal conflicts, and problems in prioritization, which will lead to unsafe behavior. Of course, there might be a small minority of people intentionally neglecting the instructions and rules, and, therefore, sanctions are also necessary in some cases.

As regards risk perceptions, people are quite incapable of estimating the risks. It is known that people tend to overestimate their own abilities, and especially if they have not faced any accidents, their perceptions of risks might become even more distorted. Our results show that experiencing an accident in one's vicinity increases one's criticality towards safety practices, which might be partly because of the increased awareness regarding safety risks. In our study, we also discovered that many of the respondents considered minor accidents a normal part of daily work, which can be seen as a sign of distorted perceptions of risks and safety. Supervisors and workers should discuss what is actually normal in one's work. Of course, the employer should state that accidents are not part of normal work.

To improve the competence of employees in identifying work-related risks, envisioning training might be useful. By discussing the accident and near-miss reports from one's own workplace as well as other departments or companies, envisioning the different possible scenarios and determining preventive actions, people are trained to better understand the causalities behind accidents. The methods used in the analysis should include elements that also help to identify the real factors behind the unsafe behavior (see Kalakoski et al. 2015).

8.3 Limitations

The number of organizations in our study is small, and therefore the results cannot be generalized to the entire working population. However, our data represented different industries and organizational groups and we consider the results to represent the phenomenon of safety as an organizational value quite well.

8.4 For future research

Based on our research, we feel there is a need for further study regarding the value-forming mechanisms in organizations. We also suggest a pilot study to develop and test the "safety as an organizational value" socialization process.

LITERATURE

Alli, B.O. (2008). Fundamental principles of occupational health and safety. Geneva (Switzerland): International Labour Organisation. 221p.

Amalberti R. (2015), Values/behaviour: cause or consequence?, Tribunes de la sécurité industrielle, 2015 , 4, pp. 1–3, FONCSI.

Aupperle, K.E., Carroll, A.B. & Hatfield, J.D. (1985). An empirical investigation of the relationship between corporate social responsibility and profitability. Academy of Management Journal 28, 446–463.

British Quality Foundation (BQF). (2016). Glossary of EFQM Excellence Model terms [Internet] [cited 2016 Feb 26]. Available from: http://services.bqf.org.uk/efqm-excellence-model/glossary-terms

Buccini, L.D., Jones, C., Iverson, D., & Caputi, P. (2009). Toward a construct definition of informed consent comprehension. Journal of Empirical Research on Human Research Ethics, 4(1), 17–23.

Buytendijk, F. (2010) Dealing with dilemmas. Hoboken, NJ: Wiley. 220 p.

Cambridge Dictionaries Online. (2016). http://dictionary.cambridge.org/

Cambridge Leadership Development. (2013). Quadruple Bottom Line for Sustainable Prosperity. Available from: http://cambridgeleadershipdevelopment.com/quadruple-bottom-line-for-sustainable-prosperity/. [29 February 2016].

Carroll, A.B. (1979) A three-dimensional conceptual model of corporate social performance. Academy of Management Review 4, 497–505.

Carroll, A.B. (1983). Corporate social responsibility: Will industry respond to cutbacks in social program funding? Vital Speeches of the Day 49, July 15, 604–608.

Carroll, A.B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. Business Horizons 34, July/August, 39–48.

Carroll, A.B. (1999) Corporate social responsibility. Evolution of a definitional construct. Business & Society 38, 3, 268–295.

Carroll, A.B. (2015). Corporate social responsibility: The centerpiece of competing and complementary frameworks. Organizational Dynamics 44, 87–96.

Clarke S. (2006a). The relationship between safety climate and safety performance: a meta-analytic review. Journal of occupational health psychology, 11(4), 315-327. DOI: 10.1037/1076-8998.11.4.315

Clarke, S. (2006b). Contrasting perceptual, attitudinal and dispositional approaches to accident involvement in the workplace. Safety Science, 44(6), 537-550. DOI: 10.1016/j.ssci.2005.12.001

Cochran, P.L. & Wood, R.A. (1984). Corporate social responsibility and financial performance. Academy of Management Journal 27, 42–56.

Colley, S. & Neal, A. (2012). Automated text analysis to examine qualitative differences in safety schema among upper managers, supervisors and workers. Safety Science 50, 1775–1785. DOI: 10.1016/j.ssci.2012.04.006.

Colley, S.K., Lincolne, J. & Neal, A. (2013). An examination of the relationship amongst profiles of perceived organizational values, safety climate and safety outcomes. Safety Science 51, 69–76. DOI: 10.1016/j.ssci.2012.06.001.

Collin, P. (2009). Dictionary of Business. Retrieved from http://www.eblib.com

Conchie, S.M. & Donald, I.J. (2006). The role of distrust in offshore safety performance. Risk Analysis, 26 (5), 1151–1159. DOI: 10.1111/j.1539-6924.2006.00822.x.

Cooper, D. (2001). Treating safety as a value. Professional Safety, February, 17–21.

Corporate social responsibility. (2016). In Wikipedia, The Free Encyclopedia. Available: https://en.wikipedia.org/wiki/Corporate_social_responsibility. [March 1 2016].

Crowe, J.W. (1995). Safety values and safe practices among college students. Journal of Safety Research 56, 187–195.

Davis, K. (1973). The case for and against business assumption of social responsibilities. Academy of Management Journal 16, 312–322.

DeArmond, S., Huang, Y.-H., Chen, P.Y. & Courtney, T.K. (2010). Corporate financial decision makers' perceptions of their company's safety performance, programs, and personnel: Do company size and industry injury risk matter? Work 37, 3–13.

Dekker, S. (2012). Just Culture, Balancing Safety and Accountability. 2nd edition, Aldershot: Ashgate Publishers. 171 p.

Díaz-Cabrera, D., Hernandez-Fernaud, E. & Isla-Díaz, R. (2007). An evaluation of a new instrument to measure organisational safety culture values and practices. Accident Analysis & Prevention 39, 6, 1202–1211.

Dierdorf, E.C. & Morgeson, F.P. (2013). Getting what the occupation gives: exploring multilevel links between work design and occupational values. Personnel Psychology, 66, 687–721.

Directive 2013/30/EU on safety of offshore oil and gas operations and amending. Eu-

ropean Parliament and of the Council. 12 June 2013. Available at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32013L0030 (Visited 27.7.2015)

Du, S., Bhattacharya, C.B. & Sen, S. (2010). Maximizing business returns to corporate social responsibility (CSR): the role of CSR communication. International Journal of Management Reviews, 12, 8–19.

Edwards, J.R.D., Davey, J. & Armstrong, K.(2013). Returning to the roots of culture: A review and re-conceptualisation of safety culture. Safety Science 55, 70–80.

Eilbert, H. & Parket, I.R. (1973). The current status of corporate social responsibility. Business Horizons 16, 5–14.

English - English Dictionary. (2015). Retrieved from http://www.eblib.com

Epstein, E.M. (1987). The corporate social policy process: Beyond business ethics, corporate social responsibility, and corporate social responsiveness. California Management Review 29, 99–114.

Fitch, H.G. (1976). Achieving corporate social responsibility. Academy of Management Review 1, 38–46.

Fonseca, L.M. (2015). Strategic Drivers for Implementing Sustainability Programs in Portuguese Organizations–Let's Listen to Aristotle: From Triple to Quadruple Bottom Line. Sustainability: The Journal of Record, 8(3): 136–142. doi:10.1089/SUS.2015.29004.

Friedman, M. (1962). Capitalism and freedom. Chicago: Chicago University Press.

Fu, Y.-K. & Chan, T.-L. (2014). A conceptual evaluation framework for organizational safety culture: An empirical study of Taipei Songshan Airport. Journal of Air Transport Management 34, 101–108.

Giddens, A. (1991). The consequences of modernity. Stanford, CA: Stanford University Press.

Giddens, A. (1991). The constitution of society. 5th ed. Cambridge (UK): Polity Press; 402p.

Gregory, B.T., Harris, S.G., Armenakis, A.A. & Shook, C.L. (2009). Organizational culture and effectiveness: A study of values, attitudes, and organizational outcomes. Journal of Business Research 62, 673–679.

Griffin, M.A. & Neal, A. (2000). Perceptions of safety at work: A framework for linking safety climate to safety performance, knowledge, and motivation. Journal of Occupational Health Psychology 5, 347–358.

Guldenmund, F.W. (2000). The nature of safety culture: a review of theory and research. Safety Science 34, 215–257.

Gyekye, S.A. & Salminen, S. (2007). Workplace safety perceptions and perceived organizational support: Do supportive perceptions influence safety perceptions? International Journal of Occupational Safety and Ergonomics 13, 2, 189–200.

Gyekye, S.A. & Salminen, S. (2009a). Age and workers' perceptions of workplace safety: A comparative study. International Journal of Aging and Human Development 68, 2, 171–184.

Gyekye, S.A. & Salminen, S. (2009b). Educational status and organizational safety climate: Does educational attainment influence workers' perceptions of workplace safety? Safety Science 47, 20–28.

Gyekye, S.A., Salminen, S. & Ojajärvi, A. (2012). A theoretical model to ascertain determinates of occupational accidents among Ghanaian industrial workers. International Journal of Industrial Ergonomics 42, 233–240.

Halbesleben, J., Leroy, H., Dierynck, B., Simons, T., Savage, G. & McCaughey, D. (2013). Living Up to Safety Values in Health Care: The Effect of Leader Behavioral Integrity on Occupational Safety. Journal of Occupational Health Psychology 18, 4, 395–405.

Henderson, D. (2001). Misguided virtue: False notions of corporate social responsibility. London: The Institute of Economic Affairs.

Henriques, A. (2013). CSR, sustainability and the triple bottom line, pp. 26–33 in Henriques, A. & Richardson, J. (2013). Triple Bottom Line : Does It All Add Up, e-book, accessed 29 February 2016, <http://ttl.eblib.com/patron/FullRecord.aspx?p=430036>.

Higgins, E.T. (2002). How self-regulation creates distinct values: the case of promotion and prevention decision making. Journal of Consumer Psychology 12, 177–191.

Hofstede, G., Hostede, G.J. & Minkov, M. (2010). Cultures and organizations: software of the mind. 3rd ed. New York (NY): McGraw – Hill. 560p.

Hollnagel, E., Woods, D.D. & Leveson, N.(eds.) (2006). Resilience engineering. Aldershot: Ashgate.

Holme, R. & Watts, P. (2000). Corporate social responsibility: making good business sense. World Business Council for Sustainable Development (WBCSD). Available: http://www.wbcsd.org/web/publications/csr2000.pdf

Hsu, C.-C., & Sandford, B.A. (2007). The Delphi technique: Making sense of consensus. Practical Assessment, Research & Evaluation, 12(10). Available online: http://pareonline.net/getvn.asp?v=12&n=10.

Hystad, S.W. & Bye, H.H. (2013) Safety behaviors at sea: The role of personal values

and personality hardiness. Safety Science 57, 19–26.

IAEA (2009). The management system for nuclear installations. Vienna. Available at http://www-pub.iaea.org/MTCD/publications/PDF/Pub1392_web.pdf (Visited 27.7.2015)

IAEA (2015) Safety culture. http://www-ns.iaea.org/tech-areas/operational-safety/safety-culture-home.asp. Downloaded 7.9.2015

Inayatullah, S. (2005). Spirituality as the fourth bottom line? Futures 37(6):573–579.

Isaac, A., Shorrock, S.T., Kennedy, R., Kirwan, B., Anderson, H. and Bove, T. (2003). The Human Error in ATM Technique (HERA-JANUS). EUROCONTROL EATMP Report HRS/HSP-002-REP-03 Edition 1. Brussels: EUROCONTROL.

Jamali, D. & Mirshak, R. (2007). Corporate social responsibility (CSR): theory and practice in a developing country context. Journal of Business Ethics 72, 243–262.

Johnson, H.L. (1971). Business in contemporary society: framework and issues. Belmont, CA: Wadsworth.

Jones, T.M. (1980). Corporate social responsibility revisited, redefined. California Management Review, Spring, 59–67.

Kalakoski, V., Ratilainen, H., Lukander J., and Salminen S. (2012). Cognitive failure at work: factorial structure of a new questionnaire. ECCE 2012: 177-180

Kalakoski, V., Ratilainen, H., Puro, V., Perttula, P., Salminen, S., Lukander, J., Mattila, S., Leskinen, T., Mäkelä, T., and Plaketti, P. (2015). Sujuvaa työtä, vähemmän virheitä – Inhimillisten virheiden vähentäminen työpaikoilla (SUJUVA) [Better work flow, less errors: Decreasing human errors at work, the SUJUVA project]. Työterveyslaitos, Helsinki. ISBN 978-952-261-542-8. 60 p.

Karr, A. (1999). The CEO difference. Safety+Health, June, 74–79.

Keller, L.M., Bouchard, T.J., Arvey, R.D., Segal, N.L. & Davis, R.V. (1992). Work values: Genetic and environmental influences. Journal of Applied Psychology 77, 1, 79–88.

Kritsotakis, G., Vassilaki, M., Chatzi, L., Georgiou, V., Philalithis, A.E., Kogevinas, M. & Koutis, A. (2011). Maternal social capital and birth outcomes in the mother-child cohort in Crete, Greece (Rhea study). Social Science & Medicine 73, 1653–1660.

Lai, D.N.C., Liu, M. & Ling, F.Y.Y. (2011). A comparative study on adopting human resource practices for safety management on construction projects in the United States and Singapore. International Journal of Project Management 29, 1018–1032.

Lawler, E.E. (2014). The Quadruple Bottom Line: Its Time Has Come. Available from: http://www.forbes.com/sites/edwardlawler/2014/05/07/the-quadruple-bottom-line-its-time-has-come/#75e72e836630 . [29 February 2016].

Maon, F., Lindgreen, A. & Swaen, V. (2010). Organizational stages and cultural phases: A critical review and a consolidative model of corporate social responsibility development. International Journal of Management Reviews, 12, 20–38.

Martino, J.P. (1972). Technological forecasting for decision making (3rd edition). McGraw-Hill, Inc.

McKinsey 7S Framework. (2016). In Wikipedia, The Free Encyclopedia. Available: https://en.wikipedia.org/w/index.php?title=McKinsey_7S_Framework&oldid=702064529. [March 1 2016].

McWilliams, A. & Siegel, D. (2000). Corporate social responsibility and financial performance: correlation or misspecification? Strategic Management Journal 21, 603–609.

Meglino, B.M. & Ravlin, E.C. (1998). Individual values in organizations: Concepts, controversies, and research. Journal of Management 24, 351–389. DOI: 10.1016/S0149-2063(99)80065-8.

Merrick J.R.W., Grabowski, M., Ayyalasomayajula, P. & Harrald, J.R. (2005). Understanding organizational safety using value-focused thinking. Risk Analysis, 25(4), 1029–1041.

Neal, A., Griffin, M.A. & Hart, P.M. (2000). The impact of organizational climate on safety climate and individual behavior. Safety Science 34, 99–109.

Newman, S., Griffin, M. & Mason, S. (2008). Safety in Work Vehicles: A Multilevel Study Linking Safety Values and Individual Predictors to Work-Related Driving Crashes. Journal of Applied Psychology, Vol. 93 (3), pp. 632–644

Newman, S., Lewis, I. & Watson, B. (2012). Occupational driver safety: Conceptualizing a leadership-based intervention to improve safe driving performance. Accident Analysis and Prevention 45, 29–38.

Paarlberg, L. E. and Perry, J. L. (2007). Values management: Aligning employee values and organization goals. American Review of Public Administration, 37(4). DOI: 10.1177/0275074006297238.

Peters, T.J. & Waterman, R.H. (1982). In search of excellence: lessons from America's best-run companies. New York: Harper & Row.

Rasmussen, J. (1997). Risk modelling in a dynamic society: a modelling problem. Safety Science, 27 (2/3), 183–213.

Ratilainen, H. (ed.), Salminen, S., Zwetsloot, G., Perttula, P., Starren, A., Steijn, W., Pahkin, K., Drupsteen, L., Puro, V., Räsänen, T., Aaltonen, M., Berkers, F., and Kalakoski, V. (2016). The value of safety and safety as a value. SAF€RA technical report, number 2016-01. Available at projects.safera.eu.

Reason, J.T. (1997). Managing the risks of organisational accidents. Aldershot: Ashgate. 252 p.

Reiman, T., Pietikäinen, E. & Oedewald P. (2008. Turvallisuuskulttuuri: Teoria ja arviointi. [Safety culture: Theory and evaluation] Espoo, VTT Publications 700, 106 s.

Robinson, P., Oades, L. G., & Caputi, P. (2015). Conceptualising and measuring mental fitness: A Delphi study. International Journal of Wellbeing, 5(1), 53–73.

Rokeach, M. (2000). Understanding Human Values. Free Press, New York. 322 p. ISBN: 978-0743214568.

Ros M., Schwartz S. H. & Surkiss S. (1999). Basic Individual Values, Work Values and the Meaning of Work. Applied Psychology: An International Review, January 1999, pp. 58–9.

Saleh, J.H. & Pendley, C.C. (2012). From learning from accidents to teaching about accident causation and prevention: Multidisciplinary education and safety literacy for all engineering students. Reliability Engineering and System Safety 99, 105–113.

Salminen, S. & Koivula, N. (2006). Personal values in a Finnish steel company. In: K.L. Saarela, C.-H. Nygård & S. Lusa (Eds.): Promotion of well-being in modern society. 38th annual congress of the Nordic Ergonomics Society, 24–27 September 2006 in Hämeenlinna, Finland. Pk-paino oy, Tampere, 91–93.

Salminen, S., Gyekye, S.A. & Ojajärvi, A. (2013). Individual and organizational factors of safe behavior among Ghanaian industrial workers. Engineering Management Research 2, 98–110.

Schein, E. (1996). Three Cultures of Management: The Key to Organizational Learning. Sloan Management Review, 38, 1, 9–20.

Schein, E. (1997). Conceptual model for managed culture change. In: Schein, E. (ed.) Organisational culture and leadership. 2nd ed. San Francisco (CA): Jossey-Bass. 406p.

Schein, E. (2007). Can learning cultures evolve? In: The new workplace: transforming the character and culture of four organizations. Waltham (MA): Pegasus Communications. 59–68.

Schein, E. (2014). National and Occupational Culture Factors in Safety Culture. Revised Draft for IAEA meeting, April 9, 2014.

Schein, E.H. (2010). Organizational Culture and Leadership, 4th Ed. San Francisco: Jossey-Bass.

Schwartz, S. H. (1992). Universals in the Content and Structure of Values: theoretical Advances and Tests in 20 Countries. Advances in Social Psychology, vol. 25, ed. M. Zanna (Orlando, FL: Academic Press, 1992), 1–65.

Schwartz, S. H. (1994). Are there Universal Aspects in the Structure and Contents of Human Values? Journal of Social Issues, Winter 1994, 19–45.

Schwartz, S. H. and Bilsky W. (1990). Toward a theory of the Universal Content and Structure of Values: Extensions and Cross-Cultural Replications', Journal of Personality and Social Psychology, May 1990, 878–91.

Schwartz, S. H. and Bilsky, W. (1987). Toward a Universal Psychological Structure of Human Values. Journal of Personality and Social Psychology, September 1987, 550–62.

Schwartz, S. H. and Sagiv, L. (1995). Identifying Culture-Specifics in the Content and Structure of Values. Journal of Cross-Cultural Psychology, January 1995, 92–116.

Schwartz, S. H., Melech, G., Lehmann, A., Burgess, S., & Harris, M. (2001). Extending the cross-cultural validity of the theory of basic human values with a different method of measurement. Journal of Cross-Cultural Psychology, 32, 519-542. DOI: 10.1177/0022022101032005001.

Schwartz, S.H. (2012). An Overview of the Schwartz Theory of Basic Values. Online Readings in Psychology and Culture, 2(1).

Shamir, R. (2011). Socially responsible private regulation: World-culture or world-capitalism? Law & Society Review 45, 2, 313–336.

Sinclair, R., Martin, J. & Sears, L. (2010). Labor unions and safety climate: Perceived union safety values and retail employee safety outcomes. Accident Analysis and Prevention 42, 1477–1487.

Smallman, C. & John, G. (2001). British directors' perspectives on the impact of health and safety on corporate performance. Safety Science 38, 227–239.

Snowden, D (2000). Cynefin: a sense of time and space: the social ecology of knowledge management. In Despres, C. & Chauvel, D. (eds.), Knowledge Horizons: The Present and the Promise of Knowledge Management, 237–266, Butterworth-Heinemann: Oxford.

The Robert W. Campbell Award. (2015). Recognizing Business Excellence in Safety and Health. The Campbell Institute 2015. Available at www.campbellaward.org. [28 July 2015].

The Values-Based Business. (2014). Compassion as the fourth bottom line?. Available: http://valuesbased.biz/2014/08/10/compassion/. [29 February 2016].

Townsend, A.S. (2013). Exploring large organizations – to fear or not to fear? Farnham: Gover.

Ullmann, A.A. (1985). Data in search of a theory: a critical examination of the relationships among social performance, social disclosure, and economic performance of U.S. firms. Academy of Management Review 10, 540–557.

US OSHA (2012). White paper on Injury and Illness Prevention Programs. Available at https://www.osha.gov/dsg/InjuryIllnessPreventionProgramsWhitePaper.html [27 July 2015].

Van Scheppingen, A.R., ten Have, K.C.J.M., Zwetsloot, G.J.I.M., Kok, G., & van Mechelen, W. (2015). Determining organisation-specific factors for developing health interventions in companies by a Delphi procedure: Organisational mapping. Journal of Health Psychology, 20 (12), 1509–1522.

Waddock, S.A. & Graves, S.B. (1997). The corporate social performance – financial performance link. Strategic Management Journal 18, 4, 303–319.

Walton, C.C. (1967). Corporate social responsibilities. Belmont, CA: Wadsworth.

Wood, D.J. (1991). Corporate social performance revisited. Academy of Management Review 16, 691–718.

Yousuf, M.I. (2007). Using experts' opinions through Delphi technique. Practical Assessment, Research & Evaluation, 12(4). Available online: http://pareonline.net/getvn.asp?v=12&n=4.

Zwetsloot, G. (2003). From management systems to corporate social responsibility. Journal of Business Ethics 44 (2–3): 201–207.

Zwetsloot, G., Aaltonen, M., Wybo, J.-L., Saari, J., Kines, P. & Op De Beeck, R. (2013). The case for research into the zero accident vision. Safety Science 58, 41–48. Available at http://dx.doi.org/10.1016/j.ssci.2013.01.026 (Visited 27.7.2015)

Zwetsloot, G.I.J.M. & Starren, A. (eds.) (2004). Corporate Social Responsibility and Safety and Health at Work, Research Report from the European Agency for Safety and Health at Work, Issue 210, Bilbao, 131 p.

Zwetsloot, G.I.J.M., van Scheppingen, A.R., Bos, E.H., Dijkman, A. & Starren, A. (2013). The core values that support health, safety, and well-being at work. Safety and Health at Work 4, 187–196.

Many companies describe safety as their top priority, but does that mean that safety is a value for them? Values are more stable and can be expected to have a more sustainable impact on safety than safety as "just a priority". Particularly in an era of deregulation, globalization, economic downturn and the 'changing world of work', values and culture are more stable than management systems or priorities.

There is often an imbalance between safety values and business values, leading to dilemmas and unsafe situations. By exploring safety values and dilemmas, this report provides insights into more successful mechanisms that have the potential to strengthen and promote safety values.

Työsuojelurahasto
Arbetarskyddsfonden
The Finnish Work Environment Fund

TNO innovation for life

FONCSI
Fondation pour une culture de sécurité industrielle

Työterveyslaitos
Arbetshälsoinstitutet
Finnish Institute of Occupational Health

PL 40, 00251 Työterveyslaitos

www.ttl.fi

ISBN 978-952-261-796-5 (nid.)
ISBN 978-952-261-795-8 (PDF)